

THE IRON AGE

Published every Thursday Morning by David Williams Co., 14-16 Park Place, New York.

Vol. 82: No. 22.

New York, Thursday, November 26, 1908.

\$5.00 a Year, including Postage.
Single Copies, 15 Cents.

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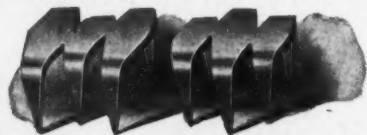


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NEW YORK

THE IRON AGE

New York, Thursday, November 26, 1908.

The Bullard 24-In. Vertical Turret Lathe.

While generally similar to the 36-in. machine described in *The Iron Age* October 3, 1907, the 24-in. rapid production vertical turret lathe of the Bullard Machine Tool Company, Bridgeport, Conn., contains some new features and minor changes. On work within its range the new machine, two views of which are given in Figs. 1 and 2, has proved much faster in operation and consequently an even greater producer. Its new points as compared with the 36-in. machine previously described include an improved type of friction engaging mechanism which permits of individual adjustment; this friction is incorporated in the speed box, side head feed works and power traverse mechanisms. The bed construction is massive;

Details of the new friction mechanism are given in Fig. 3, which shows unassembled speed box parts, and in Fig. 4, which gives a section through the speed box. In the former illustration the four gears mounted on a shaft are the friction gears; the single gear contains the friction spider which is keyed to the shaft, and also the friction and the friction expanding mechanism, which consists of a chrome steel lever. Springs which have previously constituted a part of the friction mechanism have been discarded, because they have not proved entirely satisfactory. The adjustment for each individual friction is shown in Fig. 4. As in the 36-in. machine the driving pulley shaft extends through the machine to the speed box. The continuation of the main driving shaft is shown at *a*. Keyed to it is a nest of five gears in mesh with a cone of five gears loose on the hollow shaft *b*

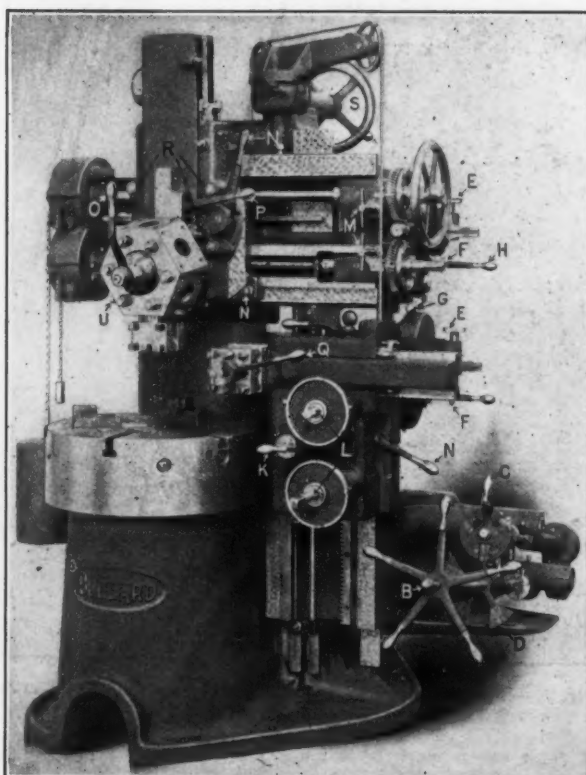


Fig. 1.—Three-Quarter Front View.

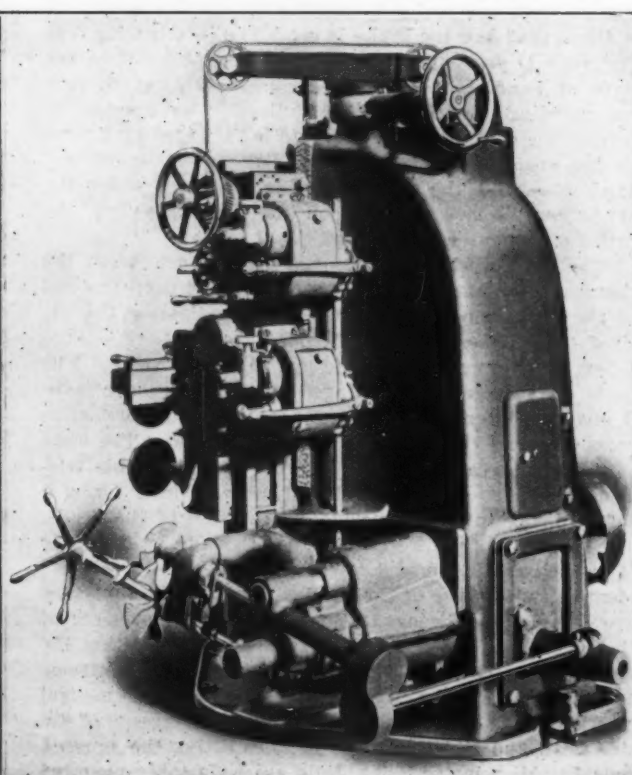


Fig. 2.—Three-Quarter Rear View.

The 24-In. Vertical Turret Lathe Built by the Bullard Machine Tool Company, Bridgeport, Conn.

there are narrow guide bearings for all sliding parts; the cross and side rails constitute a unit guided upon one continuous narrow bearing, serving to maintain positive alignment. The rapid traverse attachment is a valuable adjunct of the machine as it saves time and the considerable effort usually required to move a head in which the gibs have been properly adjusted to prevent chatter and vibration of the parts. An important feature is the center stop construction which permits disengaging the center stop, allowing the main head to cut beyond the center and machine surfaces to the left of the center.

The method of locking the slide head is an innovation. In the 36-in. machine shown previously, a stud was used having a coarse pitch thread on the end seated in the slide, which was used to raise the turret from its locking seat after the movement of the lever had released the binding pressure of the finer thread at the outer end of the stud. The turret of the 24-in. machine is forced away from its seat by a spring, the binding pressure being applied by the cam on the lever. Very careful attention was given to lubrication in designing the new machine, the gears and bearings being flooded to an even greater extent than in its predecessor.

and engaged by the frictions as required; it is impossible to engage more than one at a time.

The feeds are thrown in by means of the rack rod *c* in the shaft *b*. As in the 36-in. machine the rack rod is reciprocated by a pinion meshing with it and mounted on the rod carrying the pilot wheel. The brake *d* operates when this rod is swung into vertical position, which causes an internal friction ring to expand. Between the ends of the ring is a key with a projecting lug engaging a corresponding projection mounted as a collar on the casting containing the bearings of the clutch operating mechanism. The five changes of speed in the gear box are multiplied to 15 by a cone of three gears in the headstock which are engaged with their shaft by diving keys.

For the benefit of those not already familiar with the operation of the machine, the various levers and handles are lettered in Fig. 1, that their functions may be explained. The 15 changes of speed are divided in the headstock into three series—slow, medium and fast—and each is again divided by the speed box into five speeds, the exact number of table revolutions of each being shown on the indicator. The pilot wheel *A* controls the changes

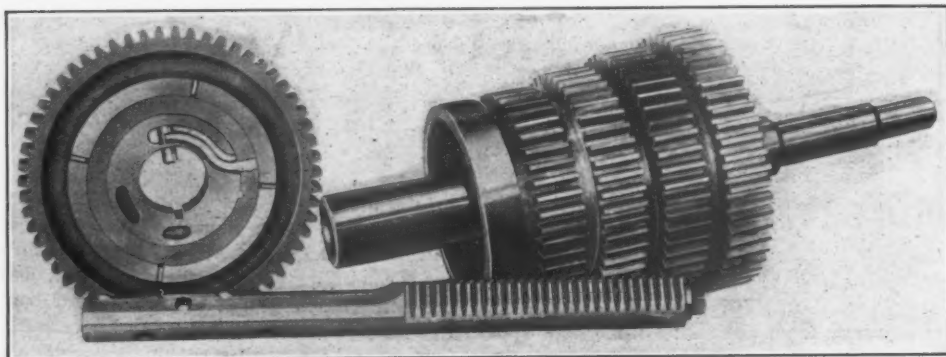


Fig. 3.—Parts of the Speed Box, Showing the New Friction Mechanism.

in the speed box, each spoke indicating one speed which is engaged when that spoke is in the vertical position. The lever B is operated by lifting, and can be used only when the frictions are disengaged and the pilot wheel spokes are in neutral position. The lever C operates the positive clutches in the headstock, and has three positions indicating the series of speeds. It is impossible to change from one series to another unless the speed box is disengaged and the brake is set. The interlocking disk and yoke D prevents moving at one time more than one lever or handle controlling the speed changing, thereby safeguarding the driving mechanism. The number of revolutions of the table per minute is indicated by figures on the arms of the interlocking disk on the speed box hand wheel rod, the speed set being that with which the arrow on the notched disk on the rod controlling the ratios of reduction gearing coincides.

The feed works are independent for each head, the changes being made by turning the knob E until the end of the rack coincides with the mark indicating the desired feed. There are two feeds for each mark on the index, this change being made by the clutch rod F. The feeds are engaged or disengaged by the drop worm lever G and this lever also makes the change from vertical to cross feed and vice versa on the vertical head. The webs of the worm gears are held between two adjustable friction plates keyed to the rod and screw, which forms a safety device in case of accidental collision of the heads. The change in the direction of feed is made by the lever H at the rear of the feed works. The sidehead feeds are identical with those of the vertical head except that they are engaged and disengaged by a horizontal movement of the lever K. When in the extreme inward position the vertical feed is engaged and when moved to an extreme outward position the cross feed is engaged. The neutral position of the lever permits rapid hand movements of the side head and slide by crank handles fitting the squared rods L. Micrometer index dials are adjustably mounted on each feed rod, and indicator clips numbered to correspond with the faces of turrets, may be set to reproduce various diameters and depths of holes. The use of these clips, shown in Fig. 5, results in a considerable saving

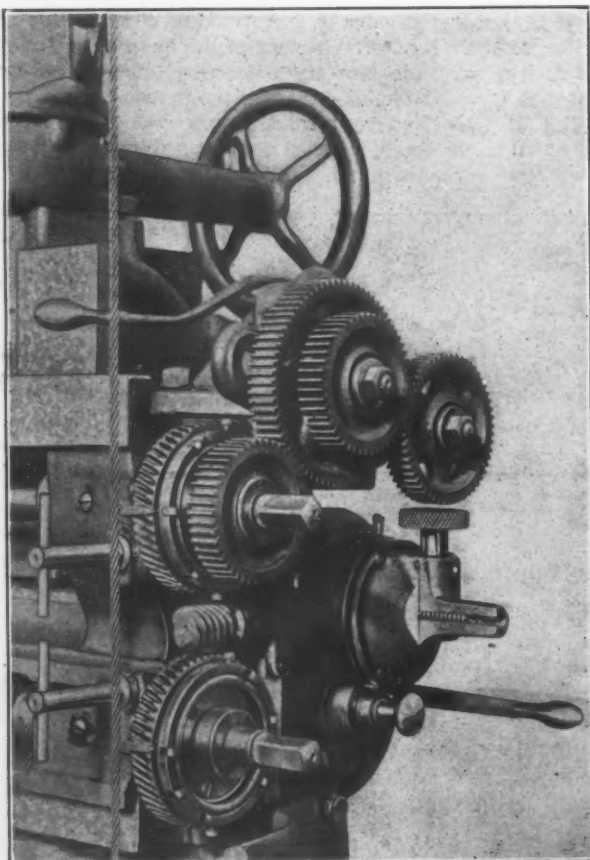


Fig. 5.—Detail of the Thread-Cutting Attachment; Also Shows Indicator Clips.

of time when work of various sizes is to be reproduced.

The vertical head is equipped with power rapid traverse device controlled by key handles M, the upper handle for the vertical slide and the lower handle for the movement of the head on the rail. Indicator plates show the resultant movement for each position of the handles. Binder handles N are set when it is desired to lock the saddle or slide stationary. The turret binder is at O and the lock pin lever at P. For the side head turret the

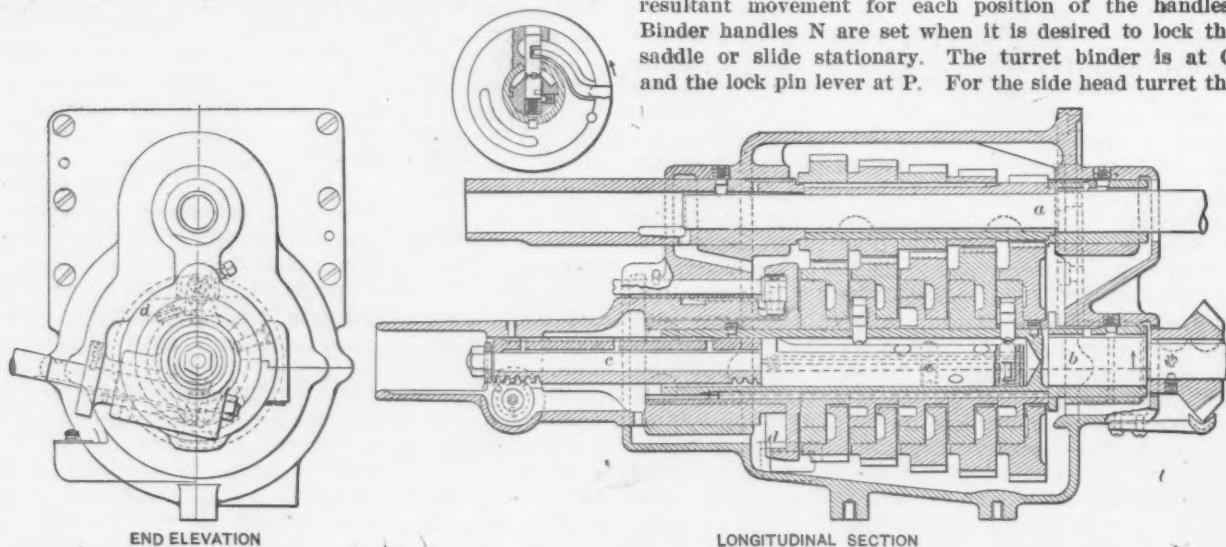


Fig. 4.—End Elevation and Section Through Speed Box, Giving Details of the Brake Friction.

handle Q acts as both binder and lock. The vertical head may be swiveled by first releasing the binder bolts R in the swivel plate and moving the head until the required angle is indicated on the graduations. The cross and side rails constitute a unit that may be raised and lowered by the hand wheel S. Should it be necessary to move the main turret head beyond the center an additional movement may be obtained by revolving the knurled handle U which throws the stop block out of engagement.

The manner of gibbing the vertical slide, with taper gibs back and front, and the solid locks of the saddle serve to maintain the correct alignment of the turret holes and the center of the table spindle. The adjustment of the back taper gibs provides for taking up wear incidental to the use of this slide, which is necessary if the turret is to continue boring accurate holes.

Autogenous Welding by the Oxy-Acetylene Flame.*

BY EUGENE BOURNONVILLE.†

Autogenous welding is the uniting by fusion of metals of the same nature at high temperature without the intervention of a different metal as is done in soldering or brazing. This welding is accomplished by means of a blow pipe, known as the oxy-acetylene torch. The high temperature of the oxy-acetylene flame was discovered by Le Chatelier in 1895. In a note to the Academy of Sciences he presented his calculations, showing that with an equal volume of oxygen acetylene would give a temperature of about 4000 degrees C., or 7200 degrees F., which is 1000 degrees C. or 1800 degrees F. greater than the temperature of the oxy-hydrogen flame.

The first experiments were greatly impeded by flash back caused by rapid propagation of the flame, and it was not until 1901 that a practical torch was obtained. This torch was developed by Fouche and Picard, both engineers of the French Company, Acetylene Dissous, and their success was due largely to the use of compressed acetylene, but even then they had to carburet the acetylene with gasoline, and still better results were obtained when the acetylene was mixed with ether to prevent the flame flashing back. This apparatus was shown by Edmond Fouche at the Société des Anciens Elèves des Ecoles des Arts et Metiers November 3, 1901, then to the French Society of Physics December 6, 1901. On March 2, 1902, Fouche exhibited a high pressure torch to the Professional Syndicate of the Academy, using only pure acetylene mixed with oxygen. It was not until near the close of 1903 that Fouche was able to construct what is known as the low pressure torch.

Since the disclosure of Le Chatelier and the inventions of Fouche and Picard, many attempts have been made to improve upon their designs. The greatest success appears to have been attained by the invention of Camille Rodrigue-Ely and Emile Gauthier of the firm of A. Boas, Rodrigues & Co., Paris, France, the United States patents on which were purchased by the Davis-Bournonville Company.

So far as is known the first oxy-acetylene torch to be used in the United States was sent to the writer by Fouche while he was still experimenting, and with this torch he was successful in welding copper and steel without the use of any flux.

There are three distinct types of oxy-acetylene torches: High, low and medium pressure. The high pressure torch can be used only with both the acetylene and oxygen under pressure, and the apparatus must be provided with positive check valves to prevent the gas of one container going into the other, in case the tip of the torch becomes obstructed by molten metal or otherwise. Because of flash backs in these high pressure torches they have become so heated in several instances that portions of the torch have been melted. Another defect of the high pressure torch is that both the gases being under very high pressure they issue from the tip

with great force and it requires an expert to make a weld without blowing away the molten metal. The advantage of the high pressure torch is that both gases being under pressure the operator has perfect control of the mixture for the flame, being able to add to or reduce the volume of either gas as required to obtain a perfect flame.

The low pressure torch is used with the oxygen under pressure while the acetylene is taken from an ordinary lighting generator in which the pressure is slight. In this torch the gas is mixed by injection, the acetylene being drawn from a surrounding chamber into the mixing chamber by the velocity of the oxygen passing through it. As there is no means in this torch to force the acetylene the operator must depend entirely upon injection to secure the mixture. As the proper mixture is 1 part of acetylene to 1.28 parts of oxygen, and the mixture by the injector being uncertain, a perfect flame is difficult to obtain, and almost invariably there is too much oxygen and the weld is oxidized.

The medium pressure torch was devised to remedy so far as is possible the defects of the other two types. This torch is constructed very much on the style of the low pressure torch except that the mixing of the gases is accomplished entirely in the nozzle or tip. This arrangement enables the operator, by simply changing the tip of the torch, to change the whole combination and to obtain the flame best adapted for the thickness of the metal to be welded, without changing the torch itself. An advantage which this torch has over the high pressure torch is that the mixing chamber and the aperture through the torch tip is about six times larger than the injector through which the oxygen is introduced at 15 lb. pressure, and consequently the blowing force of the flame is not half that of the same size high pressure torch. In case of flash back the flame cannot extend beyond the injector tip, therefore there is no injurious effect on the torch itself. The advantage over the low pressure torch, in addition to changing the size of the flame without changing the torch, is that this torch does not depend upon the injector for the proper mixing of acetylene, but both gases being under medium pressure the flame can be adjusted exactly to requirements. The flow of gas for a low pressure torch to give a stable flame must have a velocity of not less than 328 ft. per second. For the reasons stated the medium pressure torch is the ideal one for autogenous welding and the field for its application in metal working is almost unlimited.

The following table converted from metric to English measures from the *Bulletin Technologique*, September, 1907, will be found of value in making comparisons of the various gases which can be used in autogenous welding:

	Oxygen and acetylene.	Oxygen and hydrogen.	Oxygen and coal gas.
B.t.u. obtained by complete combustion of 1 cu. ft. of gas.....	1,572	202	618
Cubic feet of pure oxygen theoretically required for the perfect combustion of 1 cu. ft. of gas.....	2.51	0.62	0.923
Cubic feet of oxygen required for 1 cu. ft. of gas to obtain the best welding flame (from practical test made)...	1.3	0.25	0.67
Cu. ft. of gases required to ob- tain 1000 B.t.u. with a welding torch.	Acetylene 0.594 Oxygen...0.773	Hydrogen 3.428 Oxygen...0.857	Gas...1.62 Oxygen 1.08

The Engineers' Society of Western Pennsylvania made an inspection November 21 of the completed filtration works at Aspinwall, near Pittsburgh, built to supply that city with pure filtered water, and said to be the largest single filtration plant in the world. The pump house is equipped with four centrifugal pumps, having a combined capacity of 220,000 gal. per day, and three D'Auria pumps for cleaning and transporting the filter sand, capacity 13,000,000 gal. The three sedimentation basins have a capacity of 120,000,000 gal. The filtered water reservoir covers 6 acres, capacity 50,000,000 gal. The 46 filter beds are each 1 acre in extent and 10 additional beds are being constructed. This is the only slow sand filter in this country using mechanical means for handling the filter sand. An illustrated description of this plant was printed in *The Iron Age* of September 3.

* A paper read before the Technology Club of Syracuse, N. Y., November 17, 1905.

† Vice-president of the Davis-Bournonville Company, New York.

The National Founders' Association.

Proceedings of the Twelfth Annual Convention.

President Briggs Resigns.

The twelfth annual convention of the National Founders' Association held at the Hotel Astor, New York, November 18 and 19, differed from most of its predecessors in the absence of any protracted discussion of questions of association policy or of shop management. The membership is now well seasoned in its work, and apparently single minded on the questions that have been threshed out in the past 10 years, while any new phases of these questions that come up are committed to the administrative council to be handled as its judgment may dictate. The important development of last week's convention was the resignation of President O. P. Briggs, who as commissioner for two years and then as president for three years, has been so large a constructive and administrative factor in the affairs of the organization. His successor, Henry A. Carpenter, Providence, R. I., has long been a popular and influential officer of the association and is thoroughly representative of its policies.

President's Report.

The president, O. P. Briggs, in the introductory portion of his report referred to the depression from which the foundry interest, in common with all business, had suffered in the past year. In years past such a depression had always been marked by labor troubles, due to reductions in wages and the enforcement of conditions obnoxious to unions. The entire absence of labor difficulties affecting members of the association in the past season, the president regarded as a phenomenal record. This condition he attributed to the 12 years of association operations which had been most beneficial in broadening the ideas of employers, inspiring confidence in each other, and modifying opinion formerly prevalent which had led to excessive wage reductions in times of slack business. While existing conditions might seem to point to a period of peace in the future, those who had most closely studied the tendencies of the past 12 months could see some danger signals which need to be heeded. The president urged the most thoughtful attention to the questions which would come before the convention, more particularly those relating to legislation.

THE CRIMINAL SIDE OF MOLDERS' STRIKES.

Recent developments, the report went on, demand the presentation in the present report of facts concerning lawlessness, coercion and intimidation by the Iron Molders' Union, which had not been emphasized previously. Such a statement is especially called for in view of the activity of the Chief Executive of the United States relative to cases before the judiciary in connection with labor troubles. "The condition at the present time is such as to cause every employer of labor to put forth his very best energies in considering ways and means to be adopted in opposing the antiinjunction demands of the American Federation of Labor in which the Iron Molders' Union is a most important factor."

The officers of the association have prepared a review of the acts of violence, intimidation and murder growing out of strikes in the foundries represented in the association. This is to be put in pamphlet form, and will be distributed in due time. As to the character of this record, the president said:

This review will be compiled in circular form and may be had upon application to the secretary. It will portray an extended history of riot, bloodshed, violence and murder perpetrated by the Iron Molders' Union, which is second only to the reign of terror in the territory of the Western Federation of Miners, and in proportion to the number of men involved exceeds in magnitude the criminal practices unearthed by the historic Anthracite Coal Strike Commission of 1902.

This review will contain 32 affidavits made by non-union men and others attacked during the Utica molders' strike of 1904, upon which affidavits an injunction was issued in that city. Digests of these affidavits will be reproduced in this circular for the purpose of exhibiting the

character of intimidation and insult heaped upon independent workmen or those who did not see fit to join the union. They are fairly characteristic of the actions of this union in all other strikes reported. We could produce an endless chain of evidence of this nature.

This condition continued in the important strikes following that at Utica, notably at Worcester, Cincinnati, St. Louis, Racine, Minneapolis and Philadelphia, culminating in 1906 in a similar reign of terror established in 12 of the principal cities of the United States. This terrorizing by the Iron Molders' Union continued until the establishment of the secret service of our association, by means of which many men schooled in the criminality of this union were landed in jail and injunctions were secured, which were the only possible protection, outside of the militia, for the lives of workmen and the property of our members.

The gigantic strike of the Iron Molders' Union of 1906 for the purpose of forcing the strictly closed shop upon the foundrymen of this country was finally centered in the city of Milwaukee, where the union directed those of its officials most schooled in all the ramifications of its criminal record to leave no stone unturned to bring the proprietors to time.

Even this partial review of the lawlessness of these strikes shows 227 affidavits to various forms of violence, 14 injunctions granted, 48 cases of contempt of court, with 23 convictions, 18 of which came from the city of Milwaukee alone.

THE MILWAUKEE INJUNCTION CASES.

President Briggs then passed to a review of the injunction cases growing out of the molders' strike at Milwaukee in 1906. The original injunction issued by Judge Quarles, September 24, 1906, was dissolved upon application of the union. Immediately rioting was renewed and continued until May 20, 1907, when it became imperative to take decisive steps. Extensive hearings were granted the union leaders and the outcome of these hearings President Briggs desired to have emphasized most strongly, since the President of the United States had taken a hand in the case, in opposition to the interests of the foundrymen. The picketing in Milwaukee, as in other cases with which the association has had to deal, could not be construed, the report said, as in any sense peaceful. As Judge McPherson of Iowa, in a recent decision remarked: "There can be no such thing as peaceful picketing any more than there can be chaste vulgarity, peaceful mobbing or lawful lynching." The situation in Milwaukee when the injunction was issued against the molders was like that in the anthracite region, which was thus referred to in the report of the Anthracite Coal Strike Commission: "It is admitted that this disorder and lawlessness was incident to the strike. Its history is stained with a record of riot and bloodshed."

Among the injunctions secured at Milwaukee was one for the protection of the Allis-Chalmers Company. This case was appealed by the union to the United States Circuit Court of Appeals at Chicago. Soon after the appeal was taken information came to the officers of the National Founders' Association "that the President of the United States and his Secretary of War had taken an interest in the case; that they had at the personal solicitation of an officer of the Iron Molders' Union, himself a violator of an injunction, selected an attorney for the purpose of assisting that union in defeating this injunction; that the President and his Secretary of War had committed themselves on an *ex parte* hearing, with no knowledge whatever of the details, to the contention of the union that the injunction was wrong, too far reaching and must be modified. We were informed that these gentlemen both had expressed themselves freely upon this point and volunteered to become actively interested in securing a dissolution of the injunction or its modification."

Continuing, President Briggs said that he discredited the statements when first brought to him, believing that for the President of the United States and his Secretary of War to become parties to such an undertaking was beneath their dignity as well as an insult to the judiciary. The fact was, however, that on October 8, 1908, less than a

month before the national election, the United States Court of Appeals modified the Allis-Chalmers injunction most materially. It was a fact that on October 26 the President of the United States gave to the newspapers a letter of October 19 he had written to P. H. Grace, a member of the Brotherhood of Railroad Trainmen, Binghamton, N. Y. In this letter, which President Briggs's report quotes in full, the President told of a call at the White House in the fall of 1907, of the editor of the *Iron Molders' Journal*, who directed the President's attention to the injunction in the Allis-Chalmers case, representing that it was so sweeping that it practically forbade the union from making any effort, no matter how peaceful and proper, to maintain its position in the strike. At some length the President's letter detailed the summoning of the Secretary of War to the interview, the result of which was that at the Secretary's suggestion the union retained F. N. Judson of St. Louis, the author of the review of the labor decisions of Judge Taft published in the *Review of Reviews* in 1907, to represent it before the United States Court of Appeals at Chicago. Secretary Taft at the interview, the President's letter said, showed indignation that such an injunction had been issued, saying that the position taken by the court was clearly untenable. He added that the decision of the Court of Appeals ought certainly to be in favor of the union. The President's letter to P. H. Grace continued:

The decision of the Court (of Appeals) was handed down in Chicago on the 8th day of this month (October, 1908), and it justifies Judge Taft's wisdom, for it sustains the most important contentions of the labor unions. The Court holds that while under the facts of the case the company was entitled to some injunctive relief, the decree went far beyond the proper limits. It struck out of the decree all of the provisions which prevented peaceful picketing, or the exercise of the right of persuasion in inducing employees to join the strike, and all reference to boycotting, on the ground that there was no boycott, as the members of the union had a right to refuse to handle struck work—that is, the work from a factory where they were on a strike—wherever they found it. The opinion is important, especially as showing that much can now be accomplished in getting the courts to correct abuses against employees in the exercise of the power of injunction if such abuses are in effective form brought to their attention, as, thanks to Judge Taft, they were brought in this case.

A SERIOUS CONDITION AT MILWAUKEE.

Passing to consider the effect of this modification of the Milwaukee injunction, and the claims which the President of the United States made for Judge Taft, President Briggs referred to the situation in Milwaukee. Up to 1900 that city was considered the best in the Western States for manufacturing interests, both from the standpoint of the manufacturer and the workingman. Millions of dollars were expended in Milwaukee, due to the amicable labor conditions, money which would have been expended in Chicago, but for the deplorable situation there. What has happened in Milwaukee is indicated by the rapid growth of socialism. In 1900 the Socialist vote amounted to less than 5000. In 1902 it was about 10,500. In 1906 the Socialist party polled a vote of over 17,000, and came very near electing men to the most important positions in the municipality.

A HISTORY OF VIOLENCE.

The record of the Iron Molders' Union in the use of threats, assault and murder in its strikes were considered at some length in the report as indicating the kind of a labor union in behalf of which the Chief Executive and his Secretary of War had interested themselves. Particular attention was called to the Cincinnati strike, with its record of murder and attempts to dynamite molds in the foundries of members of the association. An incident of that strike to which publicity has not been given heretofore was detailed in the report as indicating the control over violence and intimidation by the officers of the Iron Molders' Union. In one instance, in which the union's officers had asked for one more visit from President Briggs, then commissioner of the National Founders' Association, it was insisted by the association that meantime violence should cease and the mob should leave the streets. This was agreed to by the president of the Iron Molders' Union, and the violence did stop and the gatherings of men in the streets ceased—this being brought about within a few hours after the agreement for a truce

had been made. In the conference that ensued, in which the president of the Iron Molders' Union refused to recede in any particular from his previous contention, "he spoke most boastfully of his ability to quiet this entire mob, cause the violence to cease, and maintain law and order in Cincinnati during this truce. Now, gentlemen, I ask you, is there a man in this audience in the face of these facts who can claim for one moment that it was not within the power of the Iron Molders' Union through its officers to maintain law and order in Cincinnati if they had been so disposed?"

NO INJUNCTIONS WITHOUT HEARINGS.

Referring again to the Milwaukee strike in which the union concentrated its efforts and in which there was the greatest violence, the report dwelt particularly upon the following features of the judicial proceedings there following the application for injunctions made by the Allis-Chalmers Company:

That all the demands of the labor agitators in clamoring for hearings before injunctions should be issued, were fully granted them.

That a hearing lasting several days was given them by Judge Quarles before the temporary injunction was issued. Upon a further hearing, the injunction was dissolved with a severe reprimand to the strikers from the judge. Subsequently, the rioting was so intense a renewal of the injunction was asked.

That before renewing this injunction a hearing was given the strikers to the fullest extent they desired.

That the contempt cases resulting from this injunction were not tried before the judge issuing the injunction.

That out of 18 cases in which contempt was charged, 18 men were convicted.

Here we find the judges taking this question into their own hands, and complying with those provisions which Secretary Taft has been recommending in modifying the injunction practices, but notwithstanding this the convictions were made.

In the Milwaukee case there is no provision which Judge Taft had recommended in regard to injunction practices that was not fully complied with upon the initiative of the court, regardless of the enormous loss this delay caused the people of Milwaukee.

HISTORY OF THE ASSOCIATION.

The recommendation made in the report of the previous year, that a history of the association be compiled, has been carried out in part. The late William H. Phaler undertook the work, but did not complete it. However, it has been carried to a point where others can take it up and finish it. President Briggs then briefly recapitulated the main developments of the past 11 years. He recited the early conferences of the Iron Molders' Union and those that followed—500 national conferences in all; besides 2000 local conferences, in addition to the efforts put forth by individual foundrymen in thousands of interviews designed to bring about equitable relations. "The entire undertaking was a complete failure so far as concerns arriving at any agreement whatever with the Iron Molders' Union—a sad commentary upon the boasted broadmindedness of the union leaders. At the close of these conferences it was plainly evident that instead of meeting the foundrymen in any spirit of conciliation whatever it was the union's sole purpose to force still more unreasonable conditions upon them."

RELATIONS TO EMPLOYEES.

Coming to the attitude of the National Founders' Association toward unions, the report said that there are good unions and bad unions. The former are represented by the Brotherhood of Locomotive Engineers, the conductors' and trainmen's organizations and the Amalgamated Society of Mechanical Engineers, the latter in England. Unions represented by the American Federation of Labor and adopting its tactics "are bad unions because of their anarchistic and socialistic methods, their disregard for law and order and their attempts to undermine the Constitution of the United States, and are entitled to no respect, no confidence and no hearing until such time as they see fit to reform." On the relations of the members of the association to their employees the report said:

I am more convinced than ever that the great majority of the workingmen of this country, union and nonunion, are honest, fairminded, well meaning people, striving to do that which is right and fair, and that they are doing so insofar as they are given to know, to realize and to understand what is right and fair. The great difficulty arises, not with the workingmen themselves, but with the irresponsible lead-

ers who misrepresent, distort and falsify things to suit their own ends, irrespective of the welfare of the people they represent. And here again, as in years gone by, I wish to emphasize the necessity of giving the workmen the consideration they deserve. We have now a well defined policy of dealing direct with them, placing our position before them personally for their consideration, getting their view of the case direct instead of conducting negotiations through the medium of the walking delegate, as was once the case. The beneficial results of this treatment are so pronounced that I again beseech you to have nothing to do in the conduct of your business with the prevailing labor officials, leaders and agitators.

When these leaders, from Samuel Gompers down, will accept the findings of that great tribunal, the Anthracite Coal Strike Commission, when the American Federation of Labor will accept the principles laid down in article 9 of the commission's findings, incorporate them in its constitution and by-laws, and cause them to be put in practice, then, and not until then, should any employer of men consider for one moment any collective trade relations with any union a member of the American Federation of Labor.

The remaining portions of the report were devoted to matters of internal economy, including finances, membership, the *Review* (the monthly publication of the association) and the prosecution of law breakers operating in the interest of the Iron Molders' Union.

Commissioner's Report.

Commissioner A. E. McClintock devoted the major part of his report to a discussion of the association's work in extending the use of molding machines, operated for the most part by handy men. Heretofore the commissioner has had much to say about strikes. In the past year strikes have been almost unknown. But four members have called on the association for assistance in combatting strikes in the past year, and 59 molders and coremakers were involved. Men were furnished by the association, molding machines introduced and much of the work formerly requiring skilled molders is now done by handy men and specialists. There was a notable absence of lawlessness in these strikes, apparently the result of the vigorous prosecution of such lawlessness in other strikes. Soon after the convention of 1907 the Iron Molders' Union stopped strike benefits in 22 cities. This was followed by the complete collapse of the strike in seven shops at Dayton, Ohio, formal declaration that the strike was off being made by the union. In April similar action was taken in Philadelphia, and at Milwaukee notice was given by the union that strike benefits would cease. By May 1, 1908, the union had capitulated in 32 cities.

THE INCREASING USE OF MOLDING MACHINES.

Of the large increase in the use of molding machines and the employment of handy men to operate them, the commissioner said:

Since the molders' strike of 1906 the handy man and specialty molder have been a factor of increasing importance in the foundry. The extended use of this class of labor in foundries making high grade machinery castings was at that time brought about more by necessity than by choice. The result was the brains of the pattern shop and drafting departments were turned to the foundry as never before. Every pattern on which the expense of fitting could be saved in a year or less was altered to go on a molding machine. Other jobs were changed in ingenious ways to eliminate so far as possible the skill required in molding. Perhaps the pattern was simply fitted on a board to insure the parting line and assist in drawing the pattern. The effort was toward making it possible quickly to teach green men to produce castings. The management of the various firms, from the highest official down, was giving earnest, constructive thought to the foundry and the result was marked by many surprises. Changes made in patterns and rigging reduced many important jobs to a point where but little molding skill was necessary; the time of molding was cut down and a great saving was made in cost. In fact, some jobs were made almost fool proof against loss by bad castings.

I am glad to be able to report that since our last meeting many of our members have been investigating what others are doing and putting into effect in their own shops the ideas thus gained. The quickest and simplest method of convincing your foundry foreman that improvements can be made in his methods of shop practice is to go with him on a trip of inspection to shops which are using handy men and molding machines on high grade work. . . . It has been my pleasure to discuss this matter with many of our members and to find molding machines recently introduced in a large number of union shops and successfully operated

by laborers. With the machine, castings of a more uniform character are produced and in greatly increased quantities. This has been done in shops where two years ago it was thought impossible. Not long ago I visited a shop where they have made wonderful progress the past year in their methods and found they were making on machines gas engine cylinders of all sizes up to 25 in. in diameter, and weighing about 3½ tons each. The flask required was 6 by 7 ft. and 26 in. deep in cope and drag alike. The ramming was done by the machine, the operation requiring less than 5 min. The pattern is drawn by a crane, the match plate being guided by pins. Two laborers operate the machine, while an apprentice boy sets the cores and closes the molds. I was informed that as very few pieces are made off one pattern at a time, the patterns are changed from 4 to 10 times a day. The castings produced were pronounced equal to any ever made by the firm. Much of this work formerly required the most highly skilled molders in the shop. By the use of the machine, the handy man has increased his earnings and is happy, while the management has reduced the cost in a most substantial manner.

In another shop, which is considered a union one, the manager stated that they had introduced 14 machines in the past year and for many months kept four patternmakers doing nothing but fitting patterns for molding machines. Six or seven years ago they tried to introduce molding machines, but on account of opposition from the union the attempt was abandoned. By the use of handy men they are getting fine results. Each machine will do the work of at least three molders, and on all patterns fitted to date, the machine molding has reduced the labor cost fully 50 per cent. In addition to this, they found quite a saving in the machine shop, as the castings being uniform would fit the jigs and could be handled rapidly.

In another instance the management stated they had been working on this molding machine question for about a year and a half and had all the jobs in the shop on machines or special rigs for handy men, with the exception of six floors, on which they still used journeymen molders, as compared with 35 molders previously employed. It was expected that in a few months their entire output would be molded on machines or with special rigs requiring only handy men.

A large number of similar cases could be cited, but the point I wish to press home as strongly as I know how, is to take advantage of this experience of others and profit by it. Investigate carefully what has been accomplished. Classify your own work, eliminate so far as possible the need for molders' skill, and by the use of handy men increase the supply of molders and thereby strengthen your position against interruption by strikes.

APPRENTICES.

The obligation of training a full quota of apprentices was urged by the commissioner, investigation having shown that many foundries do not educate 10 per cent. of the number of apprentices whose employment is practicable in their particular work. The great majority of the shops of the association are now open or nonunion, and the apprentices therein are receiving an education in molding far beyond anything previously available. Not only are foundrymen giving attention to the boys, but the boys are showing more interest than ever in the work. The members were urged to hold fast everything gained in this respect and to oppose vigorously the union limitation of apprentices. Care in the selection of handy men and apprentices was suggested, so that boys and men of good physical and moral fiber might be secured who would elevate the standard of the shop. A case was cited in which the character of the men hired for the foundry was such that the firm, which had a machine shop and pattern shop and regularly had in these departments high grade men of good standing in the community, decided to establish an open foundry. Whereas previously the foundry employees contributed 95 per cent. of the drinking and fighting charged against the employees of the firm, the opening of the foundry and the fixing of another standard than simply the bringing of the union card made it possible to induce a better grade of men and boys to take up foundry work.

CONTRACT MOLDERS.

Referring to the men employed by the association under contract, the report said:

Coincident with our outline of policy we adopted a method of hiring a certain number of molders by yearly contract. This plan has worked out very satisfactorily indeed. During the past year a large number of these contracts have expired, which fact the men have regretted, but nevertheless they have manifested their appreciation of our attitude towards them, and it is with the greatest pleasure I report to you that not one single contract was canceled on account of the depression in business. An item in the

treasurer's report will show you that to carry them over cost us quite a little money, but I believe it is one of the best expenditures the association has ever made. It is most gratifying to note the friendly, co-operative spirit prevailing among these workmen, together with all other independent workmen—a spirit which I believe never before existed in the foundry industry. We have endeavored to treat them fairly and liberally in all particulars. The results are phenomenal.

As a result of the many strikes, the field from which to draw independent molders has constantly broadened. Through the association's labor bureaus at New York, Detroit, Chicago and Minneapolis, we are able to keep in touch with an ever increasing number of independent workmen who look to us when out of employment. The fear which formerly existed in the mind of the average molder, that to be out of the union was equivalent to being out of work, is rapidly dying away and in many localities the independent workman can more easily obtain employment than the one with the union card.

Reports of Secretary and Treasurer.

Among the matters touched on in the report of Secretary Hutchings was that of membership. In spite of the depression there had been no decrease in membership, two firms having withdrawn and two having been added in the past year. Thus the number of shops represented in the association is still 467.

The report of the treasurer showed that the reserve fund of the association had been increased, and that there had been no special assessments. This, in view of the limited operations in many foundries in the past year and therefore a decrease in per capita payments into the treasury was considered an excellent showing.

C. S. Bonsall of the Buckeye Engine Company, Salem, Ohio, presented a paper showing the excellent results secured in the foundry of that company by the use of molding machines on large castings. The paper appears elsewhere in this issue.

Legal Questions.

George F. Monaghan, Detroit, Mich., the attorney of the association, reviewed at length the status of so-called labor legislation at Washington. He took up the several features of the labor union programme for Congressional action, particularly the proposed amendment of the Sherman Antitrust act, the anti-injunction legislation urged by the American Federation of Labor, and in the third place the proposed modification of existing conspiracy laws. Mr. Monaghan also pointed out some lines on which it was desirable for employers to work in urging additional legislation for the curbing of lawlessness in connection with strikes. The inadequacy of present laws was illustrated in the light penalty now imposed for contempt and the requirement of the courts that it must be proved that the person against whom an action in contempt is brought had actual knowledge of the issuance of an injunction. In the opinion of the speaker it should be sufficient in such cases to show circumstances indicating that the defendant had knowledge, to show that he was a member of the union against which the injunction issued, and that publication of the injunction had been made in the press and by placard posted at the works where the strikers were gathered. Referring to the *Allis-Chalmers* case, in which the United States Circuit Court of Appeals had modified the injunction issued at Milwaukee by allowing picketing, persuasion and the primary boycott, Mr. Monaghan suggested the advisability of getting this case before the Supreme Court of the United States on a writ of *certiorari*. The decision of the Appellate Court at Chicago in this case gave it as the opinion of the court that after an employee leaves his employment there continues a relation to the employer which the employee is bound to protect, pending the adjustment of the issue that has been raised by the strike. This being against all the decisions on this question it was desirable to bring it before the Supreme Court for a final adjudication. A resolution was passed in favor of the carrying of this case to the highest court.

The portion of President Briggs' report referring to the interference of the President of the United States and his Secretary of War in behalf of the striking iron molders who had used violence in the Milwaukee strike came up for consideration. A resolution expressing the sentiments of the association on such interference in pending

litigation was referred to the incoming Administrative Council for such action as it deemed proper. It was decided to have President Briggs' report on this matter put in pamphlet form and to send a copy to the President and every member of his Cabinet, to the members of the Supreme Court and to all the members of Congress.

Wages in Open Shops.

A discussion on wages in open shops and the relation of employer and employee in such shops brought out the statement that the association now has a good standing with foundry employees, and it was urged that the members exert themselves to maintain that footing. In cases where piece prices may have been put too low, possibly through the zeal of superintendent or foreman, it was important that any mistakes made should be rectified. It was urged that the men who had stood by the members of the association should be well paid. One speaker emphasized the fact that the object sought was not reduction of wages but the reduction of costs. This end could best be secured by paying the best wages. One speaker said that his instructions to his superintendent and foreman were not to reduce wages but to keep them higher than the men could get elsewhere, and thus hold together a contented and efficient working force. A report from Philadelphia showed that the average wages of molders and coremakers is now higher than before the strike of 1906, though the minimum wage is somewhat lower. The average cost of castings is lower than before and the percentage of bad work is smaller.

In reply to a question concerning the use of the premium system in the foundry, several members said that they were employing it with success.

At the close of Wednesday afternoon's session the president announced the Nominating Committee as follows: Isaac W. Frank, United Engineering & Foundry Company, Pittsburgh, chairman; A. C. Pessano, Great Lakes Engineering Works, Detroit; C. M. Jarvis, P. & F. Corbin, New Britain, Conn.; Otto Falk, Falk Mfg. Company, Milwaukee; C. Birmingham, Canadian Locomotive Company, Kingston, Ont.

THURSDAY'S SESSION.

L. L. Anthes of the Toronto Foundry Company, Ltd., Toronto, Ontario, president of the American Foundrymen's Association, was given the floor at the opening of the second day's session. He recalled that the National Founders' Association was really an offshoot of the American Foundrymen's Association, though the two organizations had taken different lines of operation, the latter being concerned entirely with educational work and the improvement of practice. He referred to the advance made in recent years toward greater certainty in foundry results in consequence of the application of scientific methods. The use of pig iron analysis in the making of foundry mixtures was chief of these advances. What remained was to do the same kind of work for sand and coke, and to extend generally the application of science in the foundry. He urged the necessity of establishing a laboratory and bureau for analytical work in foundry lines and the standardization of material, the results of such experimentation to be available generally to associated foundrymen. The American Foundrymen's Association and the American Brass Founders' Association had already conferred about the matter through their Executive Committees. He suggested the appointment of a committee of three by the National Founders' Association to co-operate in the movement.

Dr. Richard Moldenke, secretary of the American Foundrymen's Association, referred to his voluminous mail, containing requests for information about all sorts of problems connected with foundry metallurgy and general practice. He recalled one instance in which great difficulty had been experienced with castings which were to be put under pressure. Whereas losses as high as 80 per cent. had been experienced this was reduced to a loss of but 4 per cent. by a change in the method of charging the cupola. He believed the establishment of a bureau to fix standards of material and practice would greatly reduce the loss of castings.

The motion for a committee of three to co-operate in the movement suggested was carried, and the committee will be appointed in due time by the incoming president of the association.

O. P. Letchworth presented verbally a report on behalf

of the Finance Committee, showing an increase in the reserve fund of the association, and that the finances had been well kept up in spite of the adverse business conditions of the past year.

President Briggs, on behalf of the joint committee of the National Metal Trades Association and the National Founders' Association, reported that four meetings had been held in the past year. The committee had confined its efforts to two subjects, namely, legislation and the dissemination of literature, on both of which lines good progress had been made.

Extending the Use of Molding Machines.

A resolution was introduced requesting the incoming Administrative Council to make use of the present executive force of the association in the furtherance of the use of molding machines in the foundries of the membership. It was pointed out in the discussion of this resolution that when strikes occur the effort always is to introduce molding machines, and often much time is spent in investigating their possibilities and in experimentation. Instead of losing this time now devoted to these preliminaries it was argued that a good many questions relating to the molding machine could be threshed out by the staff of the association, and data obtained which would be available for the guidance of members contemplating the use of machines. Reference was made by several members to the great advantage of the successful expositions held by foundry equipment firms in connection with the annual meetings of the American Foundrymen's Association. The Toronto exhibition, it was stated, had been visited not only by 1400 to 1500 foundry representatives from the United States and Canada, but by delegations from Germany, France, Belgium and Japan. The exhibit to be held at Cincinnati in May, 1909, it was promised, would be even greater than those at Toronto and Philadelphia. The resolution was adopted, and the matter was left entirely in the hands of the new Administrative Council.

The *Review*, the monthly publication of the association, came up for consideration, and the results secured by its circulation among foundry proprietors and workmen were highly commended. The Administrative Council was authorized to extend its field of operations in any way that might seem best.

It was decided to continue the branch offices of the association, a number of members giving proofs of the efficiency of these offices, derived from their own experience.

New Officers.

I. W. Frank presented the report of the Nominating Committee. It referred regretfully to the decision of President Briggs to retire from the leadership of the association, and presented Henry A. Carpenter, Providence, R. I., as his successor. Mr. Carpenter's name was received with marked approval, and upon his unanimous election he was escorted to the chair. He paid a high tribute to his predecessor for the energy and fearlessness and the high ability which had marked his administration. Mr. Carpenter is well known to the foundrymen of the country, and has long been active in association work. He was president of the New England Foundrymen's Association for a number of years, and has taken an active part in the councils of the National Founders' Association, of which he has been vice-president for three years. The management of the A. Carpenter & Sons foundry at Providence has been in his hands for a number of years, and since its acquisition by the General Fire Extinguisher Company he has continued in charge.

Saying that the committee believed in rotation in office, Mr. Frank presented the name of O. P. Briggs as vice-president, and Mr. Briggs was unanimously chosen. F. W. Hutchings, Detroit, was re-elected secretary for the third time, and the People's State Bank of Detroit was continued as treasurer. The results of the ballots for district committeemen were then announced, as follows:

First District: A. N. Abbe, P. & F. Corbin, New Britain, Conn., chairman; J. D. Hunter, James Hunter Machine Company, North Adams, Mass., vice chairman; F. D. Wanning, Birmingham Iron Foundry, Derby, Conn.;

James F. Lanigan, Davis Foundry Company, Lawrence, Mass.; Thomas W. Fry, Sullivan Machinery Company, Claremont, N. H.

Second District.—F. E. Wheeler, International Heater Company, Utica, N. Y., chairman; H. D. Miles, Buffalo Foundry & Machine Company, Buffalo, N. Y., vice chairman; G. H. Johnson, Isaac G. Johnson & Co., Spuyten Duyvil, N. Y.; S. L. Moore, Moore Brothers Company, Elizabeth, N. J.; S. S. Gould, Goulds Mfg. Company, Seneca Falls, N. Y.

Third District.—Thomas E. Durban, Erie City Iron Works, Erie, Pa.; J. H. Schwacke, William Sellers & Co., Inc., Philadelphia; W. R. McClave, McClave-Brook Company, Scranton, Pa.; Stuart R. Carr, Stuart R. Carr & Co., Baltimore, Md.; Thomas Shipley, York Mfg. Company, York, Pa. Chairman and vice chairman not yet elected.

Fourth District.—Irving H. Reynolds, William Tod Company, Youngstown, Ohio, chairman; Omar N. Steele, American Shipbuilding Company, Cleveland, Ohio, vice chairman; Chester M. Culver, Murphy Iron Works, Detroit, Mich.; R. H. Jeffrey, Jeffrey Mfg. Company, Columbus, Ohio; William Gilbert, Buckeye Foundry Company, Cincinnati, Ohio.

Fifth District.—H. T. Hornsby, United Iron Works Company, Springfield, Mo.; D. F. O'Neil, Western Foundry Company, Chicago, Ill.; W. O. Bates, Bates Machine Company, Joliet, Ill.; F. C. Caldwell, H. W. Caldwell & Son Company, Chicago, Ill.; Edward H. Dean, Dean Brothers Steam Pump Works, Indianapolis, Ind. Chairman and vice chairman not yet elected.

Sixth District.—A. J. Brawley, South Park Foundry & Machine Company, St. Paul, Minn., chairman; Theo. O. Vilter, Vilter Mfg. Company, Milwaukee, Wis., vice chairman; Otto H. Falk, Falk Company, Milwaukee, Wis.; Oliver Crosby, American Hoist & Derrick Company, St. Paul, Minn.; Frederick Robinson, J. I. Case Threshing Machine Company, Racine, Wis.

Seventh District.—Edgar McDougall, John McDougall, Caledonian Iron Works Company, Ltd., Montreal, Quebec, chairman; S. H. Chapman, Ontario Wind Engine & Pump Company, Toronto, Ont., vice chairman; R. J. Whyte, Frost & Wood Company, Ltd., Smith's Falls, Ont.; J. A. Milne, Allis-Chalmers-Bullock, Ltd., Montreal, Quebec; L. L. Anthes, Toronto Foundry Company, Ltd., Toronto, Ont.

Eighth District.—Exile Burkitt, Southern Engine & Boiler Works, Jackson, Tenn.; D. T. Smith, Continental Gin Company, Birmingham, Ala.; G. T. Thayer, South Side Foundry & Machine Works, Charleston, W. Va.; W. S. Mosher, Mosher Mfg. Company, Dallas, Texas; Wm. J. Oliver, Wm. J. Oliver Mfg. Company, Knoxville, Tenn. Chairman and vice chairman not yet elected.

A Tribute to President Briggs.

O. P. Letchworth took the floor to express individually and on behalf of the association the general appreciation of the work of Mr. Briggs as commissioner and later as president of the association, covering a period of five years. Taking hold of its affairs at a critical time, Mr. Briggs had with great courage and wisdom developed the policy under which the association is now working. Mr. Letchworth concluded his warm expressions of eulogy with a resolution of gratitude, which was passed by an enthusiastic rising vote and ordered inscribed on the minutes.

With the announcement of the members of the joint committee which has in charge the matters on which the National Founders' Association and National Metal Trades Association co-operate, the twelfth annual convention came to an end. Irving H. Reynolds and Thomas E. Durban, together with President Carpenter, constitute this committee. As alternates the president named O. P. Briggs, W. H. Winslow and J. H. Schwacke.

The Annual Dinner.

A feature of every convention of the association is the dinner given in the evening of the first day. This year's event, as has been the case in more recent years, was pitched on a high plane, two addresses by men of note taking the place of a miscellaneous programme of toasts. President Eliot of Harvard University was first to be presented after the dinner and the music, and while the

manufacturer and the leader in university work handle widely differing problems, the foundrymen showed unbounded admiration for the veteran educator, who has been to such an extent a man of affairs. President Eliot referred to the strife that so marked the relations of employer and employed, and said that industrial warfare could only be justified when it gained something for human liberty. While many improvements had come, as shown, on the one hand, in organizations of employers, which prevented the step by step attack of organized labor, and, on the other hand, in the collective bargaining of the labor unions, the real attitude of the two forces is still that of combatants. The widespread effort to-day, both among manufacturers and workmen, to prevent competition, he characterized as pernicious. The inevitable accompaniment of the actual attainment of monopoly is regulation, and an important feature of regulation is publicity. But we are far from attaining publicity in these matters. The trade union plans in secret to strike a sudden blow, and the employers' answer is the keeping of men in the unions, who will inform them of what is planned. Expressing his disapproval of the term, captains of industry, the speaker said it implied men in command of so many automata. The real industrial leaders should be prophets, seers, inventors, men of imagination, regarding a great industry as a great social force in which are involved the interests of a multitude. Passing to arbitration, which he considered ineffective, since it meant exaggerated claims on both sides and an ultimate compromise, the speaker came at length to the attainment of a state of good will as the finality of all the struggle.

After President Eliot came James M. Beck of New York, who has been the attorney of the National Association of Manufacturers in the boycott cases against the leaders of the American Federation of Labor. Starting with the proposition that what is needed in this country is not more law but just a little more obedience to law, the speaker made it plain that in his opinion legislative interference with business is the crying evil of the time. What had come upon industrial and financial interests in the past year, he said, was not chiefly due to breaches of trust or to recent mistakes at Washington. It was rather the whirlwind reaping of 30 years of legislation that has hampered and embarrassed business men and interfered with the natural laws of trade. For nearly an hour the speaker held his audience under the spell of his cogent and eloquent discussion of the legislative phases of questions affecting employers and workmen, paying particular attention to the boycott and the fundamentals of law that had been invoked against unions making use of it.

Isaac W. Frank was most efficient as the toastmaster of the evening, prefacing the scheduled addresses with some account of the efforts of the National Founders' Association for seven years to maintain a relation of conference and conciliation with the Iron Molders' Union. The outcome was the absolute refusal of the union to modify in any particular its customs, based on its antiquated constitution of 1856.

The Mesta Machine Company's Operations.—The Mesta Machine Company, Pittsburgh, recently made delivery to the La Belle Iron Works, Steubenville, Ohio, of an engine which it rebuilt from an old 40 x 60 in. slide valve to a Corliss engine. The work included finishing the cylinder, valve, gearing, valve wrist pins, piston, &c., in fact, everything except the floor plates, and, while the Mesta Machine Company had promised a four weeks' delivery, it was able, with its complete equipment and shop force, to do better by one week, which it considers a record for work of this kind. The engine is now in successful operation. The company states that the fire which occurred at its pattern shop at West Homestead will not affect its operations in any way. Some time ago it completed a new concrete and steel constructed pattern shop, and, while it had intended delaying using this shop, it will at once install new machinery and tools for pattern making, and will be able to carry on its business without interruption. The company has just received a contract for a 1000-hp. Corliss type engine, for direct connection to a 550-kw. Westinghouse generator,

for use in mining operations at the plant of the Pittsburgh-Buffalo Company, Marlana, near Ellsworth, Pa.

A New Britain Polishing Stand.

For those who prefer a polishing frame in which maple blocks are provided for the arbor to run in, the New Britain Machine Company, New Britain, Conn., has brought out one which possesses some features of novelty. The supporting standards are of box section and give a liberal overhang, curving forward so as to bring the wheel where it can most conveniently be used for polishing tubes, cylinders, hollow ware, or irregular shapes without the interference that a straight frame offers. The frame is amply strong and heavy to preclude chance of vibration, and although the base is large enough to afford a substantial support, it is open and its actual contact with the floor is so small as not to seriously obstruct the floor or hamper sweeping around it.

The end frames are bored to receive 2-in. diameter wood blocks, conveniently adjusted by set screws which



A New Polishing Wheel Frame Made by the New Britain Machine Company, New Britain, Conn.

do not bear directly on the blocks. Each screw is provided with a drop forged blinder handle, so that a loose wrench is not necessary. The handles are swung out of the way when not in use and do not interfere with the handling of long work. The frame is regularly furnished without an arbor, but special arbors to suit any requirement can be supplied on order. The arbor may be driven by belt from an overhead countershaft or one at the rear. Ordinarily an arbor 12 in. long is used. The height of the frame from the floor to the center of the spindle is 32 in. and the weight somewhat less than 250 lb.

The United States now has more wheat in store than a year ago, while Europe has less, the figures for this country being 107,980,000 bushels and 102,481,000 bushels respectively on November 1, 1908 and 1907, while the stores in Europe are 33,130,000 and 47,030,000 bushels respectively. The stores in this country are the largest on November 1 with three exceptions for 10 years. The stores in Europe and elsewhere were 68,266,000 bushels on November 1, against an average of 80,500,000 bushels in the preceding 10 years. Europe must apparently buy heavily from us later.

Molding Machines for Stove Foundries.

Committee's Report on Labor Saving Machinery.

At the annual meeting of the Stove Founders' National Defense Association, held in New York, May 12, 1908, a committee was appointed to investigate the question of all machines for foundry use. The committee consisted of five stove manufacturers, Grange Sard of Rathbone, Sard & Co., Albany, N. Y., being chairman, while the other members were Bartlett M. Shaw, Walker & Pratt Mfg. Company, Watertown, Mass.; Philip Will, Sill Stove Works, Rochester, N. Y.; Lazard Kahn, Estate Stove Company, Hamilton, Ohio, and Fred Sattler, Belleville Stove & Range Company, Belleville, Ill. It entered upon its labors at once, with the object of securing for the members of the association such information about labor saving machinery and devices as would enable all to estimate for themselves the possibilities of economies to be thus secured. The committee visited many places and witnessed the operations of machines for stove foundry work, comprising molding machines, polishing machinery, facing machines, stove blacking machinery, and sand cutting, sand mixing and sand milling machinery. The report of the committee, which was submitted to the association at a special meeting held in New York November 17 and 18, gives much valuable information, especially with regard to molding machines.

Besides stove manufacturers, the committee interviewed other foundrymen, including a number of molding machine manufacturers, and visited their plants. On this subject the report says:

"The committee found everywhere courtesy and willingness to co-operate, and takes pleasure in recording herewith thanks to these gentlemen who so kindly assisted it. We are particularly indebted to E. H. Mumford of the E. H. Mumford Company, Philadelphia, whose services to the committee, on account of his long study of and wise acquaintance with molding machine problems, were of the greatest value; to the Henry E. Pridmore Company, Chicago, and the Arcade Mfg. Company, Freeport, Ill., both of whom entertained us at their respective plants and who have given serious and careful thought to the problem before us. The Adams Company, Dubuque, Iowa, the Rathbone Molding Machine Company, Detroit, and the Mitchell-Parks Mfg. Company, St. Louis, also contributed to our knowledge and understanding of the subject. If the above purported to be a list of molding machine manufacturers whose machines might find employment in this field, we should name the Tabor Mfg. Company, Philadelphia; J. W. Paxson Company, Philadelphia; Berkshire Mfg. Company, Cleveland, Ohio; Herman Pneumatic Machine Company, Zellenople, Pa.; E. Killings Molding Machine Works, Davenport, Iowa; A. Buch's Sons Company, Elizabeth, Pa.; Morcross Molding Machine Company, Terre Haute, Ind., and perhaps others."

"A number of stove manufacturers and others who, at their plants and otherwise, gave particularly valuable assistance and information to the committee, should be thanked here. Since, however, a number preferred to have their names omitted from the report it was deemed best not to name any. Reply postal cards were sent to 227 stove manufacturers of the United States asking what kinds of labor saving machinery were in use in their shops, and 121 replies were received and are tabulated herewith: "

	S. F. N. D. A. members.	Non- members.	Total.
Number addressed.....	68	159	227
Number of replies.....	57	64	121
Number labor-saving machines used	16	58	74
Molding machines.....	12	39	51
Polishing machines.....	18	31	49
Polishing mills.....	17	27	34
Stove blacking machines.....	13	18	31
Sand cutting machines.....	3	3	6
Sand mixing machines.....	3	4	7
Sand milling machines.....	5	5	10

That part of the committee's report relating to molding machines is as follows:

Molding Machines.

Stove Patterns Now Being Successfully Molded.

Our observations lead us to the conclusion that there are few, if any, stove patterns that cannot be made on a machine or some form of device or rig that reduces the requirements for molding skill to the point where a laborer of ordinary intelligence may be taught in a short time to produce castings in equal or increased quantity and of equal or better quality than are now made by the average stove plate molder and nearer to pattern weight. The statement dealing with the education of the machine operator includes consideration of the items of ramming, pattern drawing, finishing and pouring off, and is based on actual experience. It becomes then mainly a question of the choice of apparatus that will do the work successfully. Some of the work being made in this manner in the shops that we visited is as follows:

Gas Stoves.—Circular top racks; straight oven burners; gas stove tops measuring up to 30 x 50 in.; oven doors, &c.

Ranges.—Duplex grates; firebox linings; doors; short center; cut centers; open sides; water backs, &c.

Oak Stoves.—Legs; bases; doors; tops; grate rings; grates; firepots, &c.

Steel Ranges.—Oven door frames; pouch fronts; high closet brackets; oven door spring caps, &c.

These are only a few of the parts recalled at random and only a small part of what we saw and a still smaller part of what is being made.

The usual considerations that will guide in the selection of apparatus are size, weight and depth of pattern; number of castings to be made; adaptability of apparatus to making other patterns; its simplicity, reliability and output. The selection of apparatus must be carefully and wisely made to insure success.

Work of Small Area.

For such work as is ordinarily made on the bench a choice of widest variety is offered, running from the simple squeezer, costing about \$40, to the complicated automatic machines, costing upward of \$1500.

Simple Squeezers.—In squeezers the inherent time saving operation is the pressing of the mold. The maximum output may be gained by the use of a double faced match plate and pneumatic rapper. This outfit, simple and inexpensive as it is, may effect a saving over bench work of one-fifth to one-third. We are also advised by the manufacturers that stripper jobs may be made on squeezers, and the change from match plate to stripper effected in two minutes. Double face aluminum match plates made of two parts aluminum to one part zinc ought not to average over \$10 in cost.

Squeezer with Duplex Match Plate.—This machine is an elaboration of the simple squeezer and includes a number of special features entitled to separate notice. The distinctive feature, and the one which mainly accounts for the large output that may be secured from this machine, is the placing side by side of both cope and drag, which are both filled with sand and tugged, while the molder has his shovel in hand and before he lays it down. Examples of large outputs are 250 10 x 19 in. molds in less than 7 hours' molding time, and in the same time 220 molds of 8-in. covers, two in a mold. It is claimed that the attachment of a pneumatic rapper increases the capacity of this machine, and it may be so equipped. The examples of a day's work, named above however, were produced without the pneumatic rapper. The cost of match plates for one set of patterns is from \$22 to \$60; \$22 to \$30 is the usual cost when self-made, and \$50 is the usual charge made by the manufacturer of the machine. In places where these machines are in use we found it regarded as good practice to match plate for this machine any patterns of which 1000 or more molds per year were to be made.

Stripping Plate Machine.—We found some application of small work in this type of machine, but in most

cases it seemed to the committee that a more favorable result could be secured with small work in applying it to the squeezer type just named. The stripping plate machine finds a more logical and profitable application for larger work, with barrel flasks where hand ramming is used. Reference has already been made to stripping plate jobs on squeezers. We observed very few of these machines in use under what seemed to us the most favorable conditions, and hence are unable to state from our own observation what may be expected of them. There appears no reason, however, why, together with the simple squeezer, this machine should not find a more extended introduction into stove shops. They have the advantage that the pattern rigging best adapted to the machines is likewise best adapted to the bench.

Automatic Machines.—The full automatic machine in perfect order is probably capable of producing molds at less cost than any other type of machine. It has the advantage of being able to produce in a very short time a very large number of castings from one set of patterns. We had no opportunity of noting carefully the range of work of which such machines are capable, but since the mold is automatically filled with sand and the operator has no opportunity to tuck the mold it is not likely that this machine can be depended upon outside of the range of flat or shallow work. It is, furthermore, more apt to get out of order than the nonautomatic machines, and when it does get out of order it is a more serious matter since it keeps idle a large floor space and several men, while employing one or more machinists to put in running order again. We have found cases where the more elaborate machines were replaced by simpler types. There is, however, a wide field of usefulness for automatic machines, and any lack of reliability or endurance of past machines will no doubt be largely overcome in the future development of this type.

Multiple Molding Machines.—The machine used in multiple molding is a power ramming machine. We make no attempt to describe here in detail the process of making, suffice it to say that this method has so far been applied only to heavy work of small area. Since the impress of both the cope and the drag pattern are rammed into the same half-flask at the same time, this forms a very quick method of molding. It has the further advantage of requiring much less floor space, since five complete molds, and sometimes more, rest in the space of one. With an air hoist operating over the molding floor, a bull ladle brought to the floor on a trolley is used to pour off and the molds are shaken out by the hoist. It becomes easy in this manner to handle cheaply and easily a large amount of sand and iron. This method of molding and handling iron, flasks and sand probably reduces molding costs lower than anything else that we saw.

Work of Large Area.

Hand Ramming Stripping Plate Machines.—We observed this type of machine in use on work such as firepots, oven burners for gas ranges, boiler sections, &c. It seems to find its best application on the large work such as boiler sections. It also has its application on deeper work.

Hand Ramming Rockover Drop Table Machines.—This type of machine seems to be adapted to any flat work requiring barred flasks. We saw it used for making end shelves, gas stove tops, &c. This machine is also designed for making work of considerable depth. We found firepots being made; the cope on a rockover drop table machine, the drag on a stripping plate machine.

Gravity Molding Machine.—This is a patented machine and method, and was under our observation only in demonstration and not seen in operation in any shop. In other lines of work it is said to be giving good satisfaction and giving a large output. It has some of the disadvantages of the automatic machines, being large, cumbersome, expensive, requiring a special equipment of flask and cranes as well as large floor area. It is unique in being the one machine that gives promise of doing away with hand ramming on barrel flasks. We were not able to satisfy ourselves that the ramming under the bars was of a satisfactory and trustworthy quality.

Match Plate and Hinge Device.—Two hinge devices

of this character came under our observation, one being used in connection with iron flasks, the other being used in connection with the ordinary flask now in use in any foundry. The latter consists of a simple hinge which may be attached to any wooden flask, and it is so constructed that the two parts of the flask with the match plate between them may be rammed up together, or, in the case of large flasks, the match plate supported by a frame during the ramming of the first half, and first the cope rolled off on the hinge, then the match plate rolled off and the cope rolled back on again in the hinge and the flask thus closed. The committee observed that with this latest simple improvement in molding methods laborers were able to do the work formerly done by skilled journeymen. We are informed it requires about a month to teach a green man to produce work equal in quantity and quality to that formerly produced by the journeyman in the old way, and about three months to reach the maximum capacity of about twice the journeyman's output.

Deep Work.

Both the hand ramming stripping plate and rockover drop machines find applications here as noted previously.

Power Jar or Jolt Ramming Machines.—This is the type of machine particularly designed for work in which the ramming is a large factor, such as firepots, &c. It is likewise said to be successfully used for steam and hot water boiler sections.

Deep Work in Snap Flasks.

Foot Power Jolt Ramming and Pressing Machine.—We find one machine which seems to be very well adapted to making deep work of small size in snap flasks. It is similar to the squeezer type with duplex match plates and pattern drawing mechanism above mentioned. In addition to the pressing mechanism, it has a foot jarring mechanism for ramming which makes it possible to ram deep work successfully, and does away with the necessity for tucking. We saw some oven door spring caps made on this machine that had been previously made on the floor. In the machine the use of gagers which had been used on the floor was done away with and the output more than doubled.

Remarks.

This concludes a general review of the committee's observations concerning the different classes of molding machines and devices in use on stove plate work and the character of work which they are best designed to handle. It will be observed that the small work, such as can be made in snap flasks up to 400 sq. in. in area, offers the widest range of choice of apparatus, and that the apparatus which may be used for making this class of work reduces the requirements for molding skill and the hand work performed by the molder to a minimum. On work of larger area the demands upon the skill of the molder are greatest, and it would be reasonable to argue that the use of so simple a device as a hinge flask and match plate would be an insufficient substitute for years of apprenticeship to the trade. Theory to the contrary notwithstanding, the results of actual experience are as previously stated; namely, that a laborer may not only be taught with the assistance of this device to turn out good castings, but he may be taught to turn them out in such largely increased quantity that the proportionate saving is almost as great for this large work as for the small work where the ramming, pattern drawing and rolling over of the rammed mold are mechanically done.

It will be borne in mind that the simple match plate devices referred to were invented and developed in the stove shop itself and without the help of molding machine manufacturers. The molding machine manufacturer, however, leaving out of consideration these devices, has expressed himself of the opinion that all stove plate castings may be made upon machines, provided the stove manufacturer will remove all his prejudice and that of his organization and co-operate with him in obtaining this result.

The printing back of stove plate castings has been another stumbling block to the molding machine man, and so far as it may be done away with the introduction of the machine may be made simpler, as in printing back an

absolute perfect alignment of the pattern with its previous position is necessary. This is very difficult where there is the slightest wear upon the guides. This wearing of the guides in the dusty stove plate shop is almost impossible to avoid. The suggestion, therefore, that through a proper preparation and treatment of the molding sand, the necessity for printing back in order to secure a smooth face casting may be done away with, harbors promise of emancipation from this requirement and the removal of a serious obstacle to progress in the use of machines for stove plate. The committee, in fact, before they completed their investigations, found this suggestion carried out to a limited extent in actual practice, castings of a perfectly smooth and satisfactory finish being produced without printing back. In this cast no facing or parting sand was used in the molds, the castings being merely well milled in exhaust mills.

Economical Considerations.

How many pieces must be made per year to make it pay to use the machine?

In one shop where this question was asked in reference to the patterns of larger area made on hand ramming rockover machines, we were told that it would pay to put a pattern on the machine in the cheapest possible manner when only 200 or 300 castings were to be made. With larger quantities, of 1000 or upward, it pays to use the most perfect and expensive rig. With regard to the duplex matchplate squeezer type, where a set of patterns costs from \$22 up to \$60, we learn from a number of users that it generally required the making of 800 to 1000 molds to make it pay to rig up the patterns. By comparing patterns and prices of work you propose to rig for machine molding with similar patterns and their molding prices when made by the method proposed, the reduction in molding price may be foretold so that you may with sufficient accuracy forecast the total saving in molding cost in making the required number of castings. In this manner and after giving due consideration to other minor factors, the advisability of match plating patterns may be definitely determined for each separate pattern, and the number required to make it pay. It may be added that when new patterns are being match plated no follow boards are required and the cost of making them may be figured against the cost of the match plates.

The simplest type of hand molding press, without pneumatic rapper, may be purchased for about \$40. Other types of hand presses which have the roll-over feature and mechanical hand draft may be purchased for \$200 to \$300 each. The more elaborate power machines cost from \$400 up. The cost of patterns placed on the machines ready for use is from \$10 to \$60 each, according to the material used, size and shape of patterns and style of pattern plates. Where stripping plate machines are used, this question is best answered for each pattern by the molding machine manufacturer.

The output of any machine will, of course, vary with the type of machine, size, weight and style of patterns and pattern rigging, and the molding price, of course, will vary with the output. The reduction in molding cost will vary from 30 to 50 per cent. This is of course a general statement, and wide variations will be found. We have noted cases in which the reduction from bench prices amounted to little more than 20 per cent., while in other cases the reduction was almost two-thirds of the floor or bench price. In foundries where equipment and methods are poor, well adapted machines and pattern equipment have the opportunity for realizing greater savings than in shops where the floor and bench equipment is first class and the maximum output according to the methods now in use is already secured. The figures above named are meant to be comparative of the best results of both the old floor or bench methods and the new machine methods—*i. e.*, they are meant to represent the labor saving ability inherent in the use of the various forms of molding machinery on the usual run of stove plate work.

Nearly all machines, and certainly all those that would be recommended for use in the stove foundry, are designed to take different patterns, and in many cases a wide range of shapes and sizes. The change from one

pattern to another can be effected by those somewhat accustomed to the operation in from a few minutes to an hour. Without doubt, it is economy to run the same pattern for not less than a day at a time and change patterns outside of molding hours. Where the double faced match plate is used, the change is so readily made as to be of itself a matter of no moment. Where changes must be made in molding hours, the cost of molding will of course be higher.

Some of the items of cost offsetting reduced molding prices are the extra help in handling iron, flasks and sand; cost of making changes of patterns; the depreciation of and repairs to machinery. On very large floors, and where the iron is brought to the floor, we find that two hours' help of a laborer in shifting weights, strippers and in shaking out is all the help that is required. The cost of repairs to machines and patterns, we are informed, is very slight. The manner of figuring depreciation on machinery varies so widely that it is deemed sufficient to simply call attention to this item, leaving it to each manufacturer to figure in his own way.

The cost of making patterns for the machine has been discussed elsewhere in this report and may be varied in accordance with the number of pieces to be made and with the type of machine used. The cost of distributing iron to the floors from the cupola is an item for which we are not prepared to give figures. It will vary in accordance with the size, layout and facilities of the shop. We found in some foundries the practice of delivering iron to the molders' floors already established, and in such cases, of course, this would not form an item of additional cost. The use of the trolley system for the carrying iron, where this becomes a separate item of expense to the manufacturer, is recommended.

The Class of Labor Employed.

The universal testimony of managers, superintendents and foremen is that the best results are undoubtedly secured by drilling green operators in the use of molding machines. Green operators coming from the foundry yard, from the street, from the country, men of no mechanical skill or trade, can be taught everything that is required for them to produce satisfactory work with the aid of a machine. And with a piece price for the work that will enable them when putting forth their best efforts to earn more at this work than they had probably dreamed of being able to earn, their interests are bound up with the success of the machine. Far from having any prejudice against it, they are more apt to be enthusiastically in its favor, since they have never known any other method of molding or any other occupation by means of which they can earn more than half or two-thirds of what they are able to make on the machine. Herein lies the explanation of satisfactory results that are obtained by the use of laboring help on molding machines. These men are able to earn molders' wages and save the manufacturer 30 to 50 per cent. of his molding cost.

The committee came in contact with few manufacturers who have employed journeymen or union molders on the machines with satisfactory results; in fact, it is doubtful if any of which the committee has knowledge have attained the full measure of success. The usual method of installing machines in union shops is to employ apprentices to operate them. In some cases the apprentice refuses to work on machines, maintaining that this requirement of his employer is a violation of the contractual obligations of the indenture. In all cases it is more or less of a continuous struggle to maintain machines in operation and progress toward increase of output, and installation of machines is slow and labored in the face of unseen and insistent opposition. A number finding the effort too wearisome have abandoned the machines altogether.

The reasons for the failure of the journeyman molder to produce a maximum output on the machines are two: first, union affiliation undoubtedly has created in his mind a dislike for and prejudice against the machines; second, he lacks a positive incentive to operate the machines to the best advantage. He anticipates no increase in his earning power; the reward is negative. The

laborer is promised a large increase in his earning capacity if he gets the most out of the machine; the journeyman molder is promised employment at a less remunerative work or no work at all if he does not operate the machine to its full capacity.

For reasons stated above it is doubtful whether a nonunion journeyman would make a better success of the machine than union journeymen. The fundamental problem is one dealing with human nature perhaps as much as with union labor. Any journeyman has through long years become so accustomed to certain fixed standards of a day's work that he finds it difficult to readjust himself, against all inclination and active prejudice, to new standards of output largely exceeding the old. Inquiry in nonunion shops where both floor and machine molders are employed develops the fact that it is difficult even thus, when not encountering union prejudice against the machine, to get a man accustomed to floor or bench work to put up a full day's work on the machine.

General Conclusions.

The conclusions formed by the committee after the study of molding machines in the stove industry are in brief as follows:

1. That the stove industry is far behind others in the employment of labor-saving machinery and devices.
2. Molding machines are successfully used in some stove foundries to reduce molding cost.
3. Those institutions that are making the most use of the machines are also those that are most rapidly adding to their equipment.
4. The best results in the use of the machine were observed in open shops.
5. Best results were seen to be obtained from breaking in a green operator.
6. There is at least a reasonable hope that the necessity for printing back may be done away with where exhaust mills are in use. (In this connection we suggest that the stove manufacturer visit his molding shop and find out how much of the work is printed back which he pays the molder to print back.)
7. That all stove patterns can be molded with some form of machine or device already in use.
8. It is merely a question of the cost of patterns for the machine and the number of pieces to be made whether or not it will pay to mold the piece in question by machine. For bench work the number so required to be made to make machine molding profitable is about 1000 molds for the more expensive pattern rig and a correspondingly small number for the less expensive rig.
9. It requires a smaller number of large pieces to be made to pay for new pattern equipment, since the saving per piece is larger in proportion to cost of pattern than in the case of small pieces.
10. Through the use of these practically indestructible pattern plates in place of loose iron patterns, the cost of maintaining patterns in repair is reduced and the necessity of preserving and caring for duplicate sets of patterns in wood or iron is obviated.
11. The best results may be obtained from a system of specialized labor, which allows the machine operator to devote himself exclusively to molding and pouring; that is, allows the machine operator to perform only such work besides actual molding which will still make it possible to hold him responsible for good castings. Carrying iron, shifting weights and strippers, shaking out and, if possible, cutting over sand should be performed by common labor—machine operators to be. This suggests the employment of surface or overhead carriers as labor-saving devices.
12. A saving of about 5 per cent. of iron in machine over hand molded castings seems not unreasonable to expect. An incidental effect on factory economy is suggested by the report of a case where a reduction in the cost of grinding and mounting small cast ranges was secured, after the castings were molded by machinery.
13. The manner, most apt to be successful, of making molding machine installation, is:
First, determine that you have enough patterns of which the necessary number of molds are to be made to keep a number of machines busy.
Second, see that your organization, from manager to machine operator, is prepared to back the machine with intelligence, energy and enthusiasm.
Third, select carefully the make of machine best suited to your work. Start with not less than two machines and let all be of the same make; this simplifies matters, gives an opportunity to make competition between operators, and avoids concentrating on the one man all adverse criticism of influence. Employ every means to shield operators from sight and influence of the rest of the shop. Have a demonstrator put up a day's work for the sake of its influence on your organization and the operator, and to insure apparatus and equipment being in working order for maximum output

Fourth, after having begun right, see that your installation continues to work right.

14. The increased use of molding machinery will result in increased standardization of parts and reduction in the variety of patterns.

New Publications.

The Methods of the United States Steel Corporation for the Commercial Sampling and Analysis of Iron Ores.—By the Chemists' Committee of the United States Steel Corporation. 6 x 9 in.; paper cover; pages, 32.

This publication is the first fruit of the work of the Chemists' Committee appointed to unify the methods of sampling and analysis of materials consumed and produced by the United States Steel Corporation. The committee consists of J. M. Camp, Carnegie Steel Company; William Brady, Illinois Steel Company; W. B. N. Hawk, National Tube Company; A. B. Clemence, American Steel & Wire Company; E. A. Separk, Oliver Iron Mining Company, and G. D. Chamberlain, Carnegie Steel Company. The procedure was to have the chemists of each of the subsidiary companies separately prepare a selected group of methods representing their best practice. The methods now published were produced by adding together the best points of those submitted, and it is expected that those promulgated by the committee will be put in use to the exclusion of all others. Beginning with sampling, eight pages of the report are devoted to this important feature of iron ore determination. Then follow the various methods. For iron the bichromate and permanganate methods are presented; for silica, two methods; for phosphorus, four, the last being used where titanium is present; for alumina, two; for manganese, four; for lime and magnesla, one each; for sulphur, two. The pamphlet is an example of the vast amount of good work that has been done by Steel Corporation committees in the standardization of practice in all lines.

Practical Methods for the Iron and Steel Works Chemist. By J. K. Heess, chief chemist for the Carnegie Steel Company, New Castle, Pa. 6 x 9 1/4 in.; cloth bound, pages, 60. Chemical Publishing Company, Easton, Pa.

The author says that he lays no claim to the methods of analysis presented except in some modifications and details of handling. Credit has been given where it has been found possible to locate the name of the originator, and no methods are given which have not been tried out. With few exceptions but one method is given for each determination, this being the one found best adapted to the work, under the conditions existing at iron and steel works laboratories. Throughout the book chemical formulae are used instead of names, the idea being to help fix the formulae in the mind of the chemist. The introductory pages, comprising Part I, are devoted to the laboratory, to miscellaneous directions, to details of the elements used in the work, a table of factors, molecular formulae and standard solutions and reagents. In Part II nine pages are given to iron ore analysis, two pages to limestone, two pages to blast furnace slag, two pages to iron analysis, 10 pages to steel and 25 pages to slags and cinders, fluorspar, fire brick, boiler water, gases, bearing metals, &c.

The Buckeye Steel Castings Company.—At a recent meeting of the Board of Directors of the Buckeye Steel Castings Company, Columbus, Ohio, the construction of two more large steel buildings at the company's plant was authorized. Work on the new buildings will be started about January 1. One will be for the coupler department and will be 245 x 420 ft. The building now used for the car coupler department will be occupied by the car bolster and steel under frame department, which requires more room. The other new structure will be a core building, which will be about the same size as the coupler building. Two of the steel furnaces at the plant will also be rebuilt and their capacity doubled. The new additions will add about 25 per cent. to the capacity of the Buckeye Company's plant.

Machine Molding for Large Castings.*

The Experience of an Engine Works with Handy Men.

BY C. S. BONSALE.†

When I first began to attend these meetings and listened to gentlemen telling us how their molders were limiting output and in other ways injuring the business I would say to myself, "There must be something wrong in the method of managing his business." I had a self-satisfied feeling that the company with which I am asso-

ciated had been in vogue. We began to wonder what was wrong; thought the trouble must be with the foreman. Yes, a little. He had been the president of a local iron molders' union in one of the larger cities of my State. A change was made which showed some improvement, but not as much as we had reason to expect for the great expenditure, especially when comparing it with the results obtained from a modernly equipped extension of our machine shops, which we built at about the same time. Then we began a more systematic investigation.

About this time I attended our convention of 1905. The molding machine was under discussion. I took but little interest, however, as the consensus of opinion seemed to be that the molding machine was of little value

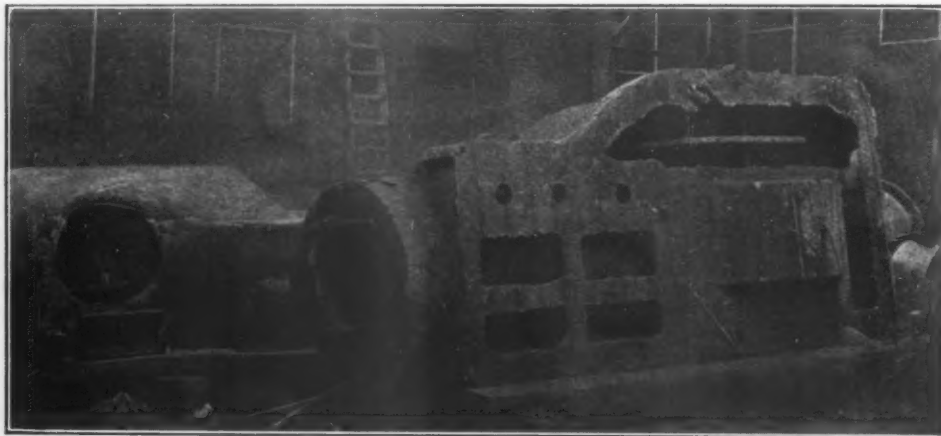


Fig. 1.—Gas Engine Bed.—Floor Work Job. Handy Man with Helper, 14 Hr. Skilled Mechanic with Helper, 18 Hr. Weight, 11,800 Lb.

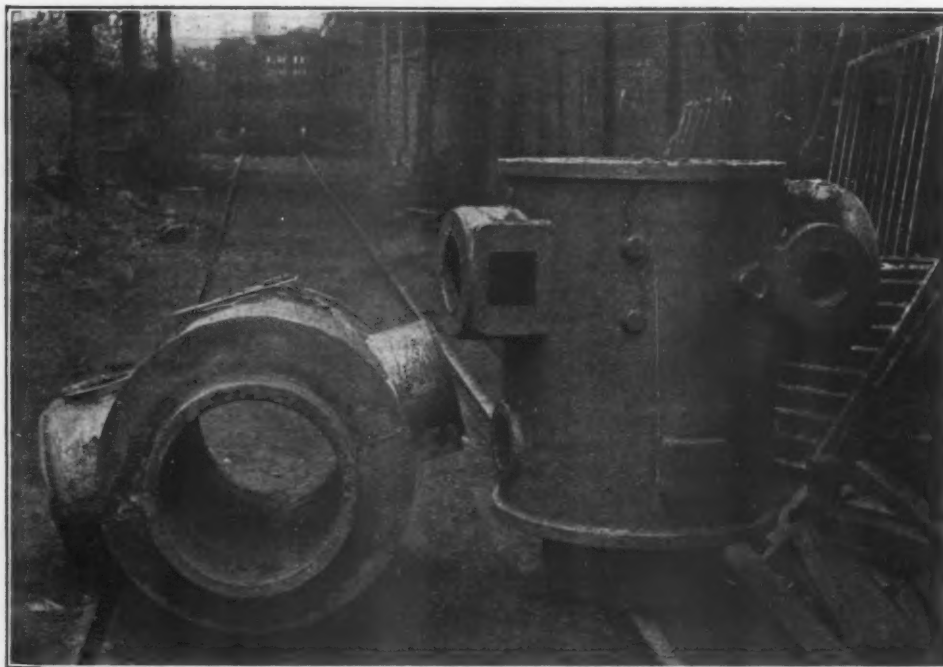


Fig. 2.—Gas Engine Cylinders, 18 In. Bore, 21 In. Stroke.—Molds Made on Machine. Time for Skilled Mechanic with Helper, 9 Hr. Weight, 3650 Lb.

ciated was in no such predicament. Now, I was not trained in close touch with the foundry, although my company has always operated one in connection with its business. I learned the machinist's trade and when finally called upon to manage the manufacturing end of the business gave most of my attention to that part of it with which I was most familiar, relying wholly upon the foundry foreman for results in that department.

Then we built a new and modernly equipped foundry. After it had been in operation a year we found that the thousands of dollars we had spent had not enabled us to reduce the cost of castings from our old foundry practice, where hand manipulated jib cranes and other anti-

unless there were large numbers of duplicate castings to be made, and we had but a limited number of any one piece to make. I well remember the occasion. The discussion closed and one or two other subjects were taken up, when a recess was proposed for luncheon. Mr. Pessano succeeded in securing the floor and with so much earnestness addressed a few words to us that it impressed me very much. It was really the inspiration which has enabled us to throw off the union millstone which we have since found was around our necks, although we did not realize it at the time. Mr. Pessano said: "I wish to say one more word about the molding machine. Get one or more, put them in, make molds on them. It does not matter whether you actually save money by operating them or not; keep at it and you will soon discover they

* A paper read at the convention of the National Foundry Association, New York, November 18, 1908.

† Buckeye Engine Company, Salem, Ohio.

will be of great value in the more economical management of your foundry."

Immediately upon my return home we commenced operations upon the lines suggested by him, which have since been worked out by us in a very satisfactory manner. A year later we became convinced that it was impossible to obtain the results sought as long as the Iron Molders' Union had a foothold in our foundry. This was two years ago. A strike was called in our shop June 29 last because we had more than the union ratio of apprentices.

Now comes what I deem of interest to all who still have that millstone about their necks, the union shop: In July, of course, our costs went up and production down. In August our production was back to almost

engine castings are more expensive to make than steam engine castings. Now, we have discovered two things: First, that in our core shop we are getting more and better cores with one-third the skilled employees than formerly. This is also true in the foundry, where skilled molders are employed only for drawing patterns, dressing molds and setting cores. Handy men shovel and ram sand. We have a number of skilled molders who have not had a rammer in their hands for over two months. Second, the molding machine has been of benefit to us in reducing cost and enabling us to obtain better castings.

I have photos showing some of the larger castings made since the strike was called. One of these is a photo of a triplex pump housing made by us for a neighbor during the hight of the strike. This was taken to illus-

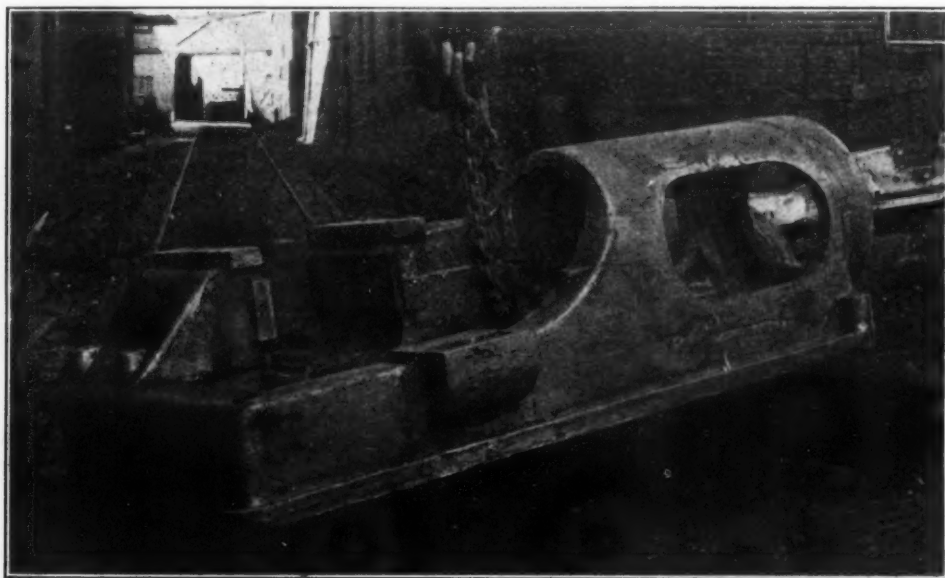


Fig. 3.—Gas Engine Bed Made Partly on Molding Machine and Rammed with Pneumatic Rammer.—Weight, 9300 Lb.



Fig. 4.—Steam Engine Bed Made by Handy Man.—Time with Helper, 30 Hr. Weight, 5600 Lb. Above are two distance pieces for gas engine, molded by handy man on second day he worked on the floor. Time, with helper, for two castings, 9 hr. Weight, 960 lb. each.

normal, with costs about 50 per cent. greater than the average. In September production was normal and costs not over 10 per cent. above the mean of the previous year. In October we succeeded in increasing our output 40 per cent. above the average of the previous year, and the cost was more than 15 per cent. less. From experience we firmly believe that we could not have secured this output in our foundry with union molders at any cost.

We are unable to give a fair comparison of costs and production for the reason that our old records are based upon steam engine castings alone, while records since the strike are mostly on gas engine castings, as we were just adding that line when the strike was called. All of you are no doubt acquainted with the fact that gas

trate how many of us have been hoodwinked by the union for many years past. Is it not so that all of you who have not been trained in actual foundry practice have been given to understand that the art of molding is a mysterious one and with few exceptions could not be practiced successfully by an honest, sober and industrious man, but that he must necessarily be privileged to take a few days after each pay to sober up and also carry a bottle into the shop with him in the morning to help him practice his mysterious craft during the day? Well, we have exploded this myth, as the casting referred to was made by a handy man who had not been at the business more than six weeks. It is not a molding machine job, but was made in a drag, cheek and cope flask in the manner in which molds have been made for

many years. The entire mold was put up by this man at a labor cost to us of \$13. One year ago we had a union molder, to whom we paid \$3.50 per day, who made a mold from the same pattern, in the same way, at a labor cost of \$44.20.

Another instance is the bed casting, front and rear views of which are shown, Fig. 1. The weight is 11,800 lb. This mold was bedded in the floor and, including the cope, was rammed by a handy man with a helper in 14 hr. The pattern was drawn, the mold dressed, cores set and the mold closed in 18 hr. by a skilled molder and his helper.

Where we are making our greatest progress, however, is on the molding machine. Referring to the gas engine cylinder of 18-in. bore, 21-in. stroke and weighing 3650 lb., in Fig. 2: This casting was rammed on a machine, the pattern drawn by crane, the mold dressed, cores set and the mold poured the same day. The actual time of the skilled mechanic with his helper was 9 hr.

In another case, a distance piece for a gas engine was made on a molding machine, the pattern drawn by crane, the mold dressed and core set by a skilled molder and his helper in 9 hr. The weight of the cleaned casting was 3800 lb.

You will also note a view, Fig. 3, of a bed casting made partly on a molding machine and partly by hand. The machine was not strong enough to ram the mold when the flask was full of sand, so we put all the sand in the flask that the machine would handle and afterward filled the flask and rammed with a pneumatic rammer. If the machine were strong enough to handle the load we would be able to complete the mold set cores and cast the same day with a skilled molder and his helper—9 hr.—and the help of a handy man for 3 hr. to assist in dressing the mold. The weight of the casting is 9300 lb.

Next you will notice a view of an uncleaned bed with two castings resting on top, Fig. 4. This bed casting is shown just as it comes from the floor and was made by a man who had been working 10 weeks at the business, in 30 hr., with helper. He rammed the mold, drew the pattern, dressed it, set the cores and did all the work. The weight is 5600 lb. The two uncleaned castings on top of the bed referred to above are distance pieces for gas engines, each weighing 960 lb. These were made on the molding machine by another handy man with helper in 9 hr. He drew the pattern, dressed the molds and set the cores. This was done the second day after he was put on the work. He had been helping a skilled molder for about six weeks.

Now this is what has been accomplished in four months after the strike was called. I think you will agree with me that it is fair progress, although I will admit we see many places where economy may yet be practiced which would be impossible if the old conditions existed.

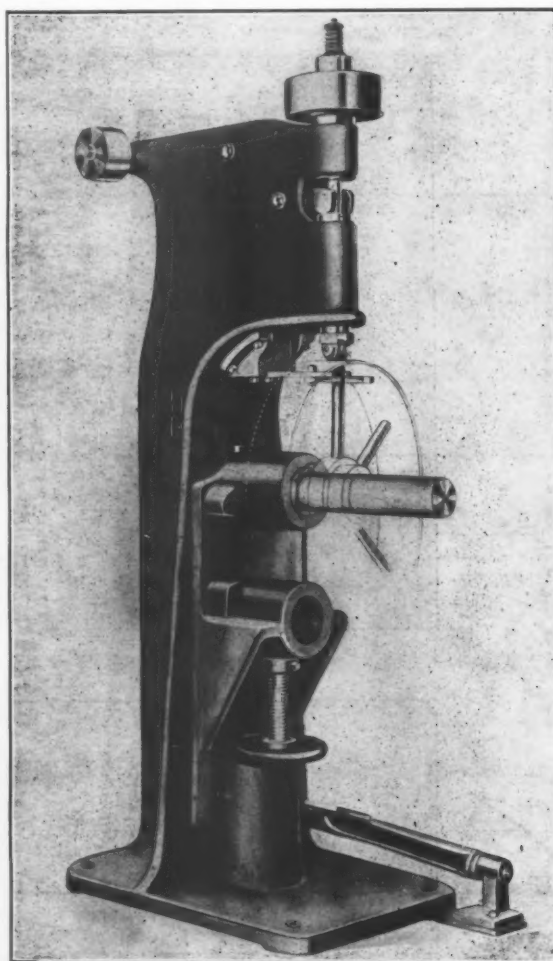
I wish to take this opportunity to thank the officers of this association for the magnificent support given us. We recognize that it would have been impossible to win out in so short a time, if ever, without their help. Commissioner McClintock was untiring in his efforts to get men and his advice was invaluable. The men sent us were on the whole fine mechanics. A very few were undesirable, but they were let out early in the strike. There is one thing I think worth mentioning. Of all the men sent us by the National Founders' Association we were obliged to discharge but one man for drunkenness, and to-day 100 per cent. of our foundry force are sober men who are on duty every day, unless absent on account of legitimate illness. I am satisfied every foundry in this country can obtain the same conditions as at present enjoyed by us if the same methods are pursued. I firmly believe, however, that you cannot succeed with the open shop until the union molder recognizes he must conform to more equitable conditions.

We are now building up a force of men who have not been trained in the bad atmosphere of the union shop, and in a short time when the volume of business throughout the country has increased and molders are in demand, when the old practice of hiring them from your neighbor is again in full swing, we will not be troubled

to any extent. We will be able to pay the few skilled molders and coremakers the highest rate of wages and they will not care to change, as they are not called upon to ram or shovel sand or do any heavy labor, which is manifestly the work of the handy man.

The Grant Pulley Rivet Spinner.

For riveting the spokes in steel rim pulleys, a noiseless rotary rivet spinning machine has recently been made by the Grant Mfg. & Machine Company, Bridgeport, Conn. The spokes used in these pulleys are made of round steel, $1\frac{1}{8}$ in. in diameter, having a tenon turned on the end entering the rim $\frac{7}{8}$ in. in diameter, thus leav-



A Rivet Spinning Machine for Securing the Spokes in the Rims of Steel Pulleys, Built by the Grant Mfg. & Machine Company, Bridgeport, Conn.

ing a $\frac{1}{8}$ -in. shoulder on which the steel rim rests. After a few trials to obtain the proper length of the tenon it was found that the spokes could be headed so perfectly that scarcely any surplus metal was left on the ends of the spokes to be removed, by grinding or otherwise, to make them flush with the surface of the pulley rim.

The illustration shows that provision has been made in the adjustable knee or table at two places to receive an arbor. This is to accommodate pulleys ranging in size from 12 to 60 in. in diameter. When the large pulleys are to be riveted the arbor is inserted in the lower hole in the knee and for the small ones in the upper one. Several arbors are provided, ranging in size from $2\frac{1}{2}$ to $4\frac{1}{2}$ in. in diameter, to support the different hubs used in the construction of the pulleys.

The German Steel Syndicate's statement shows deliveries of A products in September, reckoned in ingots, of 404,608 metric tons, as against 419,623 tons in September, 1907, when the decline began, being especially noticeable in shapes. The deliveries in the first nine months of this year, of semifinished steel, railroad material and shapes amounted to 3,649,565 tons, as against 4,362,607 tons to September 30, 1907, a falling off of 713,042 tons.

The Diamond Self-Closing Die Head.

A new automatic die head made by the Diamond Power Specialty Company, Detroit, Mich., possesses a number of original features. These include the arrangement for discharging the chips from the die head, the manner of overcoming unequal wear on the cutting blades or chasers, the unusual range of diameters of work to each size of head and the very small size of the die head. It is described as of simple but very strong and

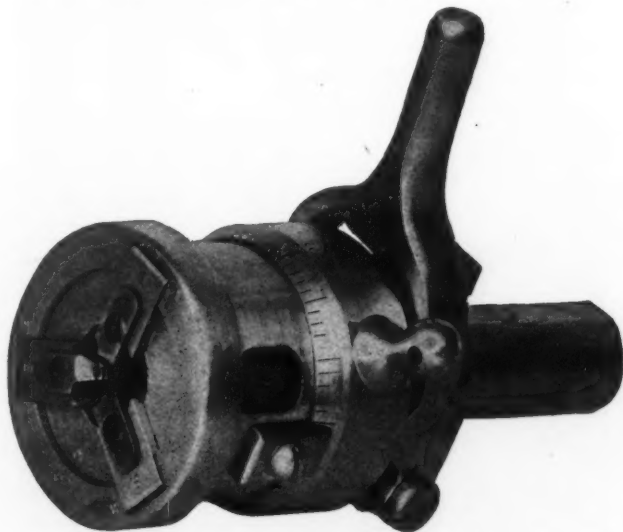


Fig. 1.—The New Automatic Die Head Made by the Diamond Power Specialty Company, Detroit, Mich.

durable construction. Fig. 1 shows a general view of the die head and Fig. 2 details of some of its parts.

With this die head a saving of wear, power and time is made, due to not reversing the motion of machine to unscrew the die after the thread is cut to the length desired, which can be made to uniform distances or lengths, as up to a shoulder, which is impossible with solid dies.

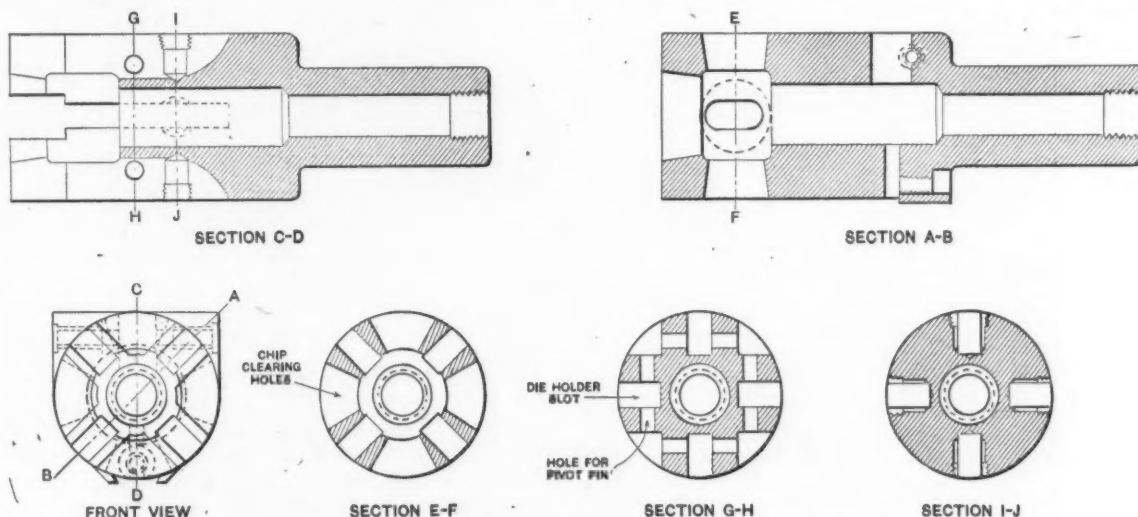


Fig. 2.—Details of Some of the Parts of the Diamond Self-Closing Die Head.

The diameters are also more accurate to standard diameters. By turning a ring on the body of the die head, which has micrometer graduations, an accurate adjustment is always possible, and it is adjustable for wear, while solid dies are not, and dies which are cut through on one side to permit of a small amount of adjustment are likely to warp in hardening and to crack in adjusting, either of which precludes its use for accurate work.

The length of the thread is adjusted to a nicety by an internal stop pin actuated by the work, if so desired, thus enabling it to be used on an ordinary turret machine or an automatic screw machine, or the stop pin can be removed and a thread of any length can be cut. For heavy or rough work a stop can be furnished to move the closing ring, which permits of taking two cuts in producing the thread. It can be closed by fastening a small

piece of steel on the turret slide to actuate the closing lever of the die on the backward motion of the turret or it can be closed by hand.

Any thread can be cut with the die head on stock suited to its size, right or left hand, standard, square, acme, Whitworth, pipe or special threads of various pitches, and it can also be used as a forming tool for small articles by using special blades of proper shape.

This method of overcoming the wear on the taper of the dies is unique. This is accomplished by mounting the die blades on pivots in the body of the die, so that in drawing them together with the adjusting ring the outer end, where the heaviest wear comes, closes in faster than the part nearer the pivots, thus compensating for the unequal wear and securing threads of uniform diameter throughout their length. This is considered an important improvement.

The die head is constructed so that it frees itself readily and quickly of chips through amply large openings provided for that purpose and through which the chips are flushed out by the oil used for cutting the thread, hence no chance is given for the chips to bunch and spoil the thread.

This head is claimed to be smaller than any other die head on the market, which should be an advantage; notwithstanding this decrease in size, rigidity is maintained. It is to be noticed that the closing ring is outside of the die blades and has its bearing on the latter immediately over the point where the greatest cutting stress comes, thus giving a very rigid die. Any wear between this closing ring and the die blade holders is taken up in adjusting the die for size, therefore this wear does not accumulate with use.

Rotterdam Ore Receipts in 1907.—Gust. H. Mueller, the head of the well-known large shipping firm at Rotterdam, has just issued, as consul general of Roumania at that port, his very handsomely equipped annual report in the French language. Although dealing specifically with the commerce of Rotterdam and of Holland, it contains a number of reviews of all the leading staples, including iron and the base metals. Mr. Mueller's firm

is closely allied with iron ore shipping, and the volume contains a series of interesting statistical tables dealing with iron ore imports and exports. Rotterdam is the receiving port for practically all of the Spanish ore which Germany imports, the quantity received being 2,408,877 metric tons in 1907. It receives also a large share of the Swedish ores shipped to Germany—1,814,892 tons out of 2,857,853 tons sent in 1907—the total exports from Sweden to all countries having been 3,467,294 tons. Of manganese ore Rotterdam received 293,651 tons in 1907, of which 246,162 tons came from Russia, 24,130 tons from India and 22,926 tons from Brazil. Antwerp was the receiving port for 318,323 tons of manganese ore, of which 160,200 tons came from India, 72,112 tons from Russia, 37,857 tons from Norway and 31,967 tons from Brazil.

A New Ferracute Cold Rolling Mill.

A rolling mill recently shipped to a foreign mint by the Ferracute Machine Company, Bridgeton, N. Y., is illustrated in Fig. 1. This machine, while in general appearance and construction not unlike other machines of its class, contains several new features, and was designed by Oberlin Smith, the president and mechanical engineer of the company. As the illustration shows, it is motor driven, a General Electric 50-hp., 220-volt motor being used. The gearing ratio is 19 to 2 and gives 44 rev. per min. to the rolls.

The housings are bolted to a cast iron base, or bed-plate, and contain phosphor-bronze boxes for the roll bearings. The rolls are made of a special metal of close texture, and are 10 in. in diameter, and the distance between the roll housings is 9 in. The rolls are adapted for rolling strips of metal of this width and any thickness up to $\frac{1}{2}$ in. The upper roll is supported by four heavy springs at a tension considerably in excess of the weight of the roll, which tension is regulated by the nuts shown at the top of the roll housings. The roll is by this means kept tight against the upper bearing surface, eliminating the film of oil that would otherwise be found between the roll and its bearing, and which would affect the extreme accuracy necessary in rolling strips of metal for coinage purposes.

The roll is adjusted by wedges, which are moved in and out by a screw connected by a train of gears to a dial crank. The dials, of which a detail is given in Fig. 2, indicate the distance between the upper and lower rolls, and consequently the thickness of the rolled strip. The dial at the left reads in hundredths of an inch, and the one at the right in ten-thousandths. One revolution of the crank moves the dial hand at the left one division, or 0.01 in., and each one hundredth indicated on the left hand dial is subdivided into a hundred parts on the right hand dial. If it is desired to roll a strip 0.2506 in. thick, the crank would be turned until the dial hand at the left pointed at 25 and the dial crank at 6.

The gears and roller ends are protected by guards and

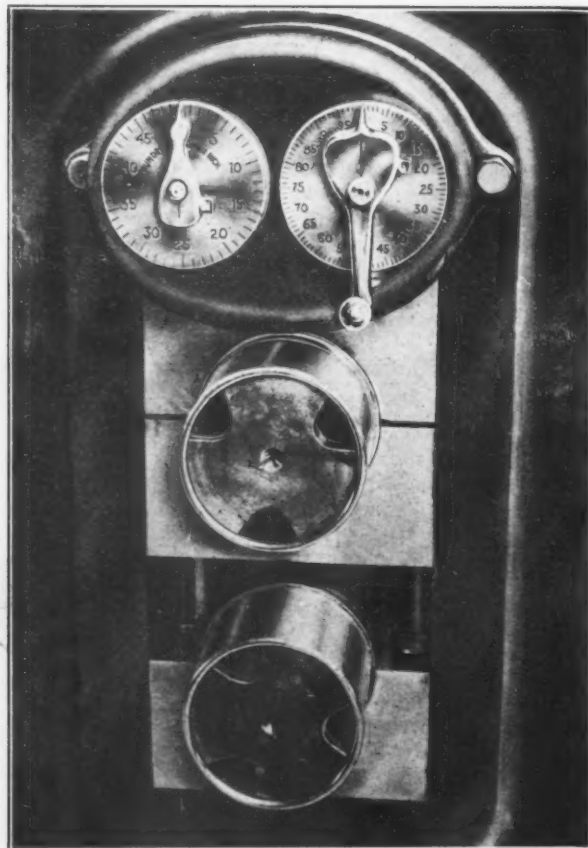


Fig. 2.—Detail of the Roll Ends, Showing the Dials Indicating to 0.0001 in. the Thickness Rolled.

all working parts of the mill are accessible. Its total length from right to left is 8 ft. 1 in.; its depth, front to back, is 6 ft. 8 in., and its height, 7 ft. 9 in. The total weight, including the motor, is 25,000 lb.

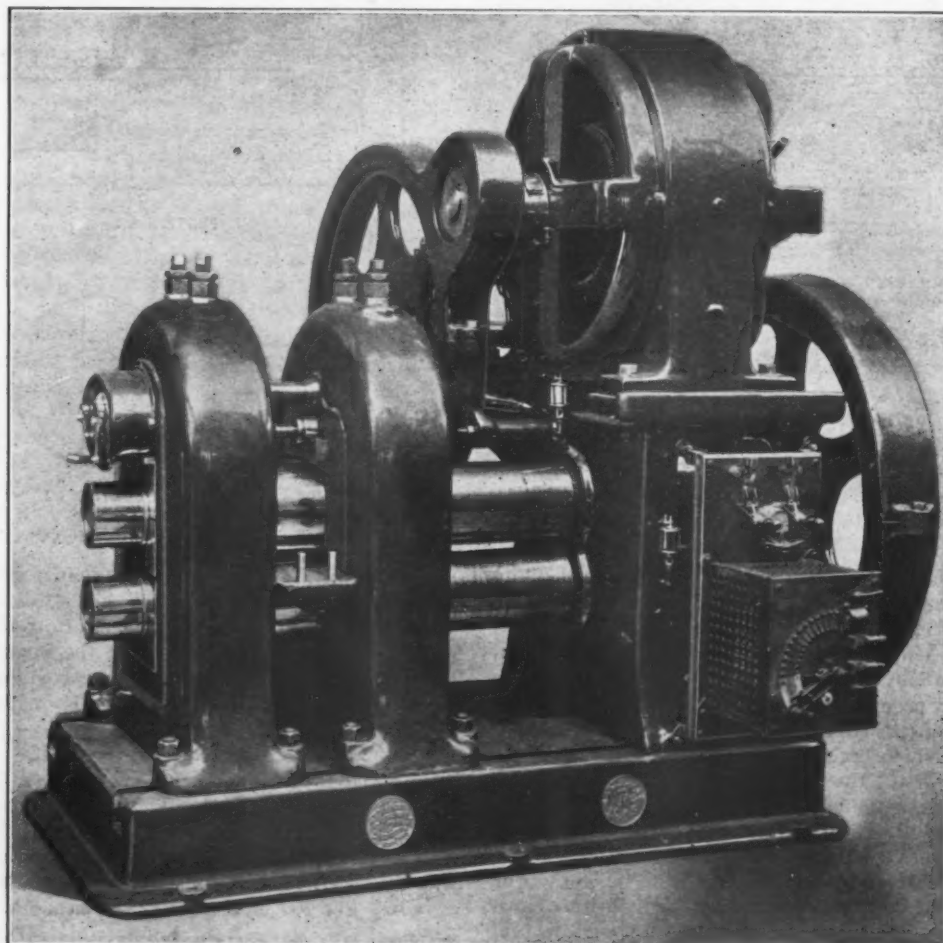


Fig. 1.—A Rolling Mill for Coin Metal Built by the Ferracute Machine Company, Bridgeton, N. J.

A New Wells Tapper and Threader.

The tapping and threading machine, Fig. 1, is designed for general machine shop use for tapping and threading a large range of special pieces, either in small or large quantities, the capacity being $\frac{3}{4}$ in. The essential features of the machine, which is built by the F. E. Wells & Son Company, Greenfield, Mass., are a back gear drive with quick reverse mechanism, the tail block and oil pump and pan.

The back gear mechanism consists of an internal gear integral with the cone pulley, the power being transmitted through a rawhide intermediate gear to a gear engaging the spindle by means of a friction. One movement of the handle shown at the top of the machine engages this friction for the tapping and threading. The opposite motion operates the quick reverse, the driving friction being thrown out and another friction thrown in, causing the spindle to reverse, driven direct from the cone pulley. This lever handle thus serves to start, reverse or stop the machine. These same functions may be performed, especially on small work, by pressing up or holding back on the tail block. The machine also has an automatic trip and reverse, which may be set for reversing at any desired point. The action of the trip is to cause a plunger to engage a cam mounted on the back gear friction.

The tail block is furnished with hardened steel jaws

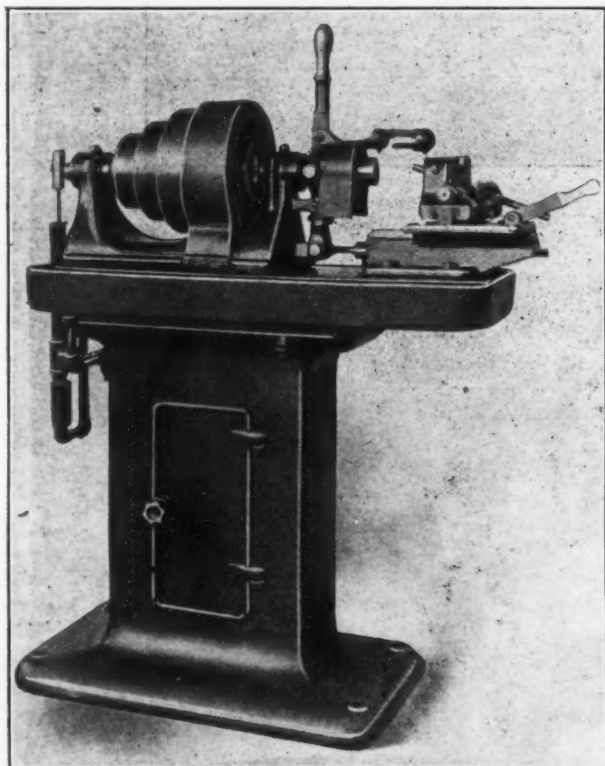


Fig. 1.—The New Tapping and Threading Machine Built by the F. E. Wells & Son Company, Greenfield, Mass.

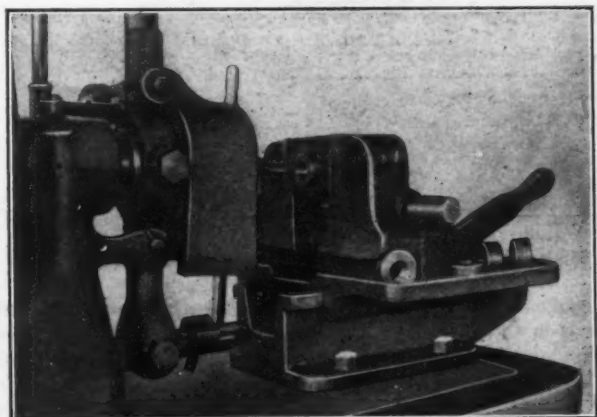


Fig. 2.—The Machine as Used for Tapping Round Nuts Held in Special Jaws.

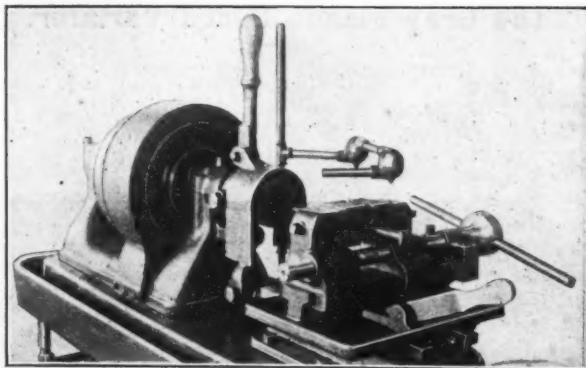


Fig. 3.—Bolt Threading, Using a Die in Place of the Tap Chuck.

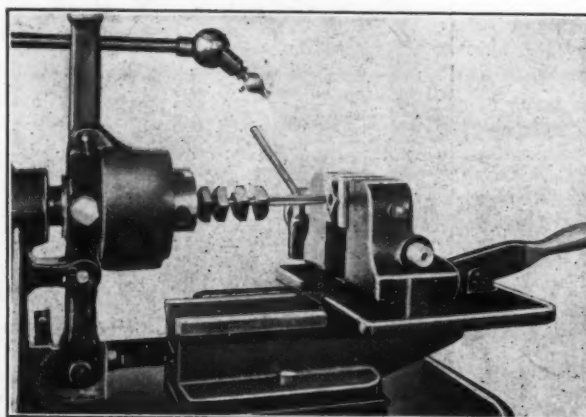


Fig. 4.—The Use of a Long Shank Taper Tap, Tapping Several Nuts in Succession.

for holding round or square work. For odd shaped pieces false jaws may be made and used in place of those regularly provided. The tail block may be set either side of center for tapping work out of center. The small lever at the back of tail block is used for starting the tap or die on larger size work, but under ordinary conditions it is sufficient to press up the tail block by hand. The face of the tail block is planed off square, so that small flat castings, too large to be held between the jaws, can be held in the hands against the jaws for tapping up to 5-16 or $\frac{3}{8}$ in. holes. A special positive drive tap chuck is furnished with the machine, which drives the tap by the squared part and at the same time centers it by the round shank.

The illustrations include those showing special uses of the machine. In Fig. 2 special round nuts are being tapped, held in jaws made to fit the work, as it was important not to mar the outside surface. In Fig. 3 a die is being used in place of the tap chuck for threading a bolt. Fig. 4 shows the use of a long taper tap, used without reversing, the nuts being strung upon the shank; the tail block has sufficient movement to permit of this.

The pump is of the plain plunger type and is driven direct from the spindle. It draws oil from a small tank and gives an even flow of oil which does not spatter; the degree of flow is regulated by a petcock.

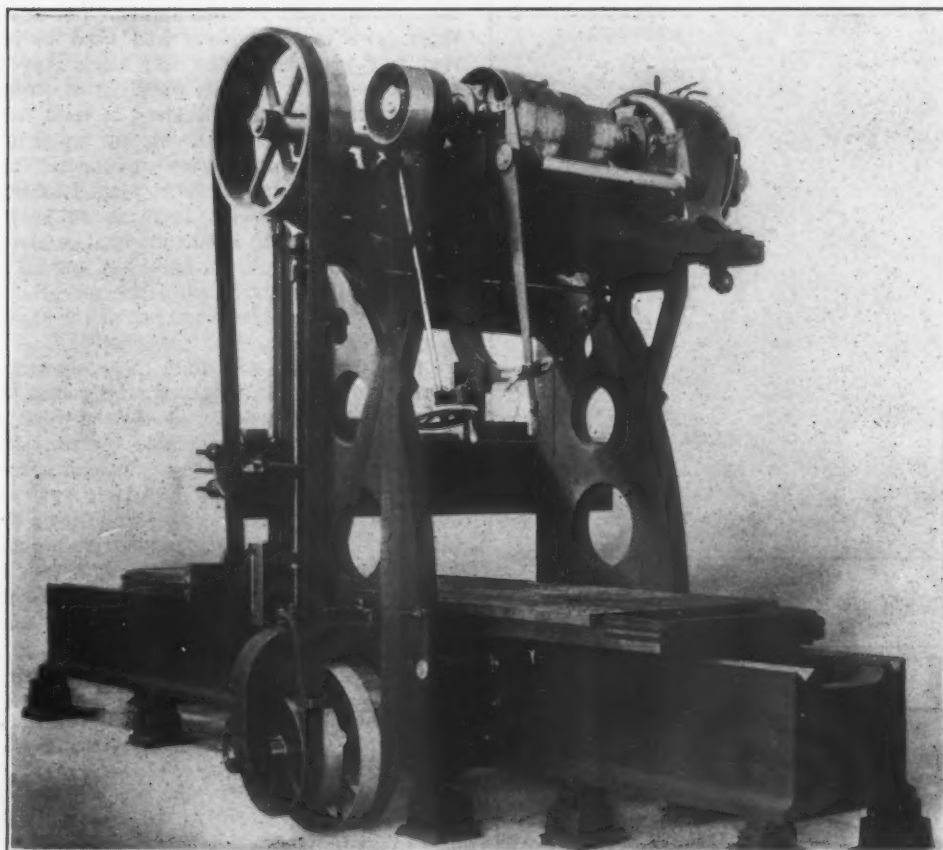
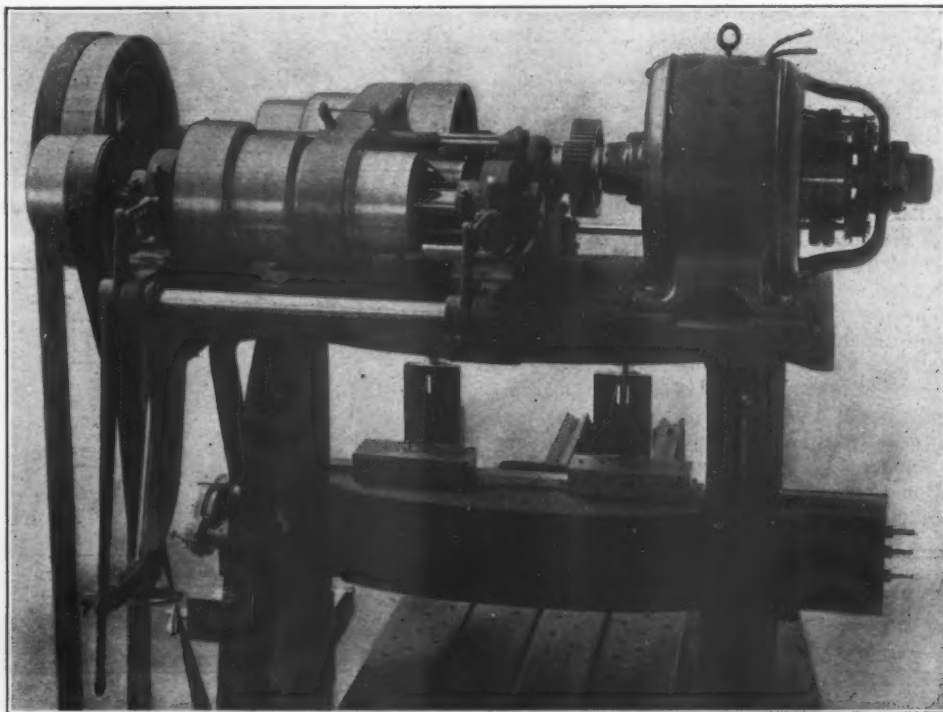
The members of the trades unions employed in the shipbuilding plant of Furness, Withy & Co., Hartlepool, England, voted November 4, at the rate of 10 to 1, to give a year's trial to Sir Christopher Furness' profit-sharing proposition. The thousands of employees in the Hartlepool plant will buy stock in the concern immediately, on which they will receive a 4 per cent. dividend, whether the company has a surplus at the end of the year or not. The stock will be paid for by a 5 per cent. deduction from wages, until the indebtedness is cleared. The venture is said to be the largest profit-sharing scheme ever attempted. In the agreement between Sir Christopher and the unions a pledge by the men against future strikes is exacted. All disputes and differences will be left to a work's council, composed of an equal number of officials and workmen.

The Gray Planer Speed Variator.

For shops in which the planer work is such as to make different cutting speeds desirable, the speed changing device manufactured by the G. A. Gray Company, Cincinnati, Ohio, is being introduced. It is essentially an ar-

The constant speed shaft may be driven either by belt directly from a line shaft, through a pair of tight and loose pulleys, or, as shown in the illustration, it may be geared to a motor shaft, thus making an entirely self-contained drive. The variable speed shaft is driven from the constant speed shaft through an endless belt.

A change of speed is effected by turning a hand wheel.



Two Views of the Speed Changing Device for Planers, Made by the G. A. Gray Company, Cincinnati, Ohio.

angement of belted cone pulleys with means for easily shifting the belt and affords four cutting speeds with a constant return speed. One cone is mounted on the constant speed shaft, on the end of which is the pulley that drives the table on its return stroke, and the other is mounted on the variable speed shaft, on the end of which is the pulley that drives the table on its cutting stroke.

conveniently located at the side of the housings, and which shifts the belt from step to step of the cones. The variable speed shaft is moved to and from the constant speed shaft by a long lever which loosens the belt while the speed is being changed and at all other times keeps it under the proper driving tension. To further facilitate the shifting of the belt the shoulders of the cone steps

are beveled off as shown and the shifting mechanism is arranged so as to shift the belt first where it goes to a smaller step and last to a larger step of the other cone. This reduces the wear on the belt due to shifting. The hand wheel operates the duplex belt shifter by means of a cylindrical cam, mounted between the cones.

The large stationary pedestal bearings for the constant speed shafts are fitted with phosphor bronze bushes, automatically lubricated by ring oilers. The sliding pedestals for the variable speed shaft are turned out to form sockets for the large ball shaped cast iron bearing blocks, which are also fitted with ring oiling phosphor bronze bushes. These form swivel bearings and insure perfect alignment of the shaft bearings under all conditions.

The speed is changed without stopping the motor, which saves the time usually wasted in waiting for the armature and pulleys to come to rest. The momentum of the two cones, supplementing that of the heavy flywheel pulley, reduces the shock on the motor at each reversal of the table.

The device is rigidly built, and as can be seen in the illustrations, is quite simple and is devoid of complicated or delicate parts that could get out of adjustment or

The Wizard Quick-Change Drill Chuck and Collets.

With the combination of the Wizard drill chuck and collets as made by the McCrosky Reamer Company, Meadville, Pa., all sizes and shapes of drills, taps, reamers, counterbores or similar special tools can be used in rapid succession without stopping the machine in which they are operated. The chuck shown in Fig. 1 fits in the spindle of the machine, and while the latter is running a light grasping of the outside collar of the chuck overcomes a spiral spring within it and throws the key slot open, so that a collet may be released or another inserted. When the hand is removed from the collar the spring closes the key slot, and if a new collet has been inserted locks it in place. The tool is held rigid and perfectly centered, without any play.

The collets, one of which may be seen in Fig. 2, are provided with a ring or flange to serve as a shoulder for the hand to press against in pushing the collet into the chuck or catching it when it is released. The conical upper end helps to hold the collet rigidly and center it perfectly, and incidentally facilitates starting it into the chuck. The drive is direct and powerful. The chuck is

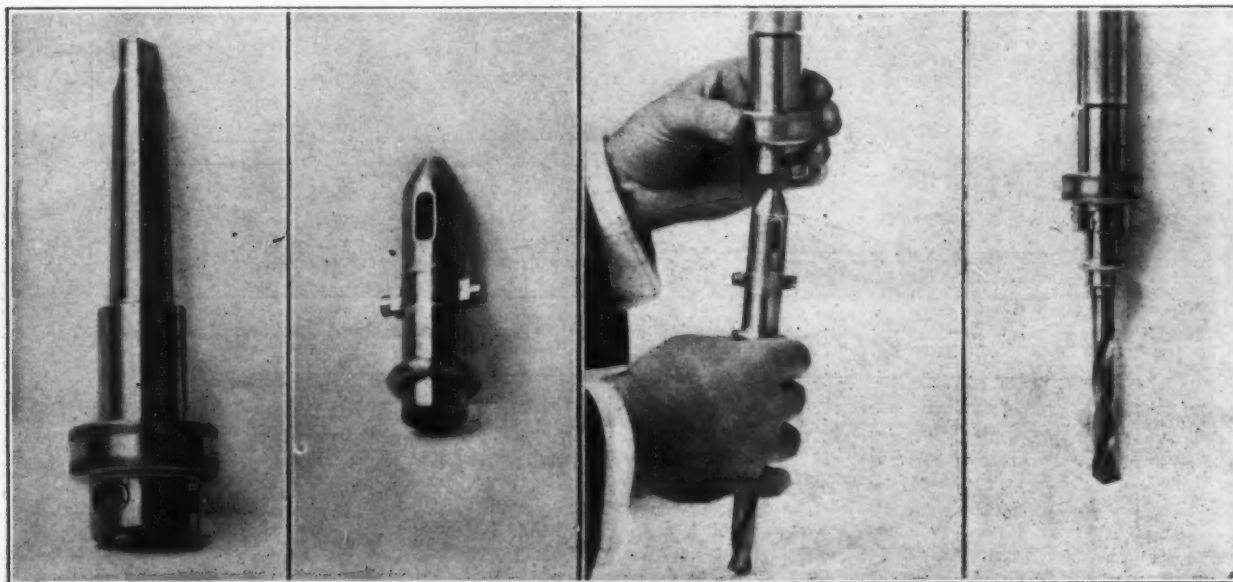


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

The Wizard Quick-Change Drill Chuck and Collets Made by the McCrosky Reamer Company, Meadville, Pa.

cause trouble or annoyance. In the elimination of rapid running gears, an almost noiseless drive is secured, but what in the opinion of the manufacturer is more important is the doing away with vibration, which characterizes a self contained geared device, especially after it has been in use for some time and subjected to the severe duty imposed by planer service.

The advantages claimed for the Gray speed variator are that it has no frictions to wear or require adjustment; no clutches to be injured or broken; no gears running loose on their shafts at all times and likely to stick or cut; no sliding gears to be damaged if carelessly shifted, and no leaky oil reservoirs. In short, it is considered to be practically fool and trouble proof. One of these speed variators has been driving a 56 in. x 27 ft. planer in the maker's shop for two and a half years, is in active service and has withstood the most severe tests. The original endless belt that is still on it appears to be in as good condition as when first put on and has never been shortened.

A special commission which has been investigating the establishment of a technical high school at Hartford, Conn., has reported in favor of such an institution. The recommendation is for a new building adjacent to that occupied by the present manual training school, but there will be no connection between the two institutions in the matter of curriculum.

machined from steel and is hardened and ground inside and out. The collets are drop forged from steel, and are machined, hardened and ground. The two drive keys for each collet are in one piece with the collet, so that they cannot work loose.

Fig. 3 shows the manner of inserting a collet in which a drill has been fitted, and Fig. 4 the tool in place ready for use. The collets are made with either standard Morse sockets or blank, in which case they are left soft, so that they may easily be bored to receive the straight shanks of drills, taps, reamers, &c. Blank collets may be had 5-1000 in. over size, so that they may be hardened and ground after being fitted to the shank. To hold the tool in the collet a pin may be passed through both the collet and the tool shank, or if it is a small shank it may be flattened on one side to engage the pin. Heavy set screws may also be used or a tang may be ground on the end of the shank.

The Wizard chucks are made in three sizes; the smallest takes a collet 15-16 in. in diameter, the next size 1 1/4 in. and the largest 1 11-16 in. An outfit consists of a chuck and one collet for each tool in the series of operations. Chucks to be used in the tailstock of a lathe can be furnished with the shank left soft so that it can be turned to fit. The company makes stands providing racks for any size chuck and its collets, on which they are held upright at a convenient height to facilitate rapid changing of tools, and affording a permanent place for keeping them.

The Newton No. 7 Horizontal Miller.

In respect to the location of levers and the application of the feeds the latest design of the Newton Machine Tool Works, Inc., Philadelphia, Pa., in plain milling machines is the No. 7 horizontal slab miller. All the

Hand adjustment to the table is obtained by the hand wheel A mounted on the horizontal feed shaft, on which are also mounted the feed and fast traverse gears, either of these motions being obtained by the lever B operating the positive drive clutch. The drive for the feed, as may be seen in Fig. 1, is taken from the horizontal driving shaft through clutched bevel gears, which

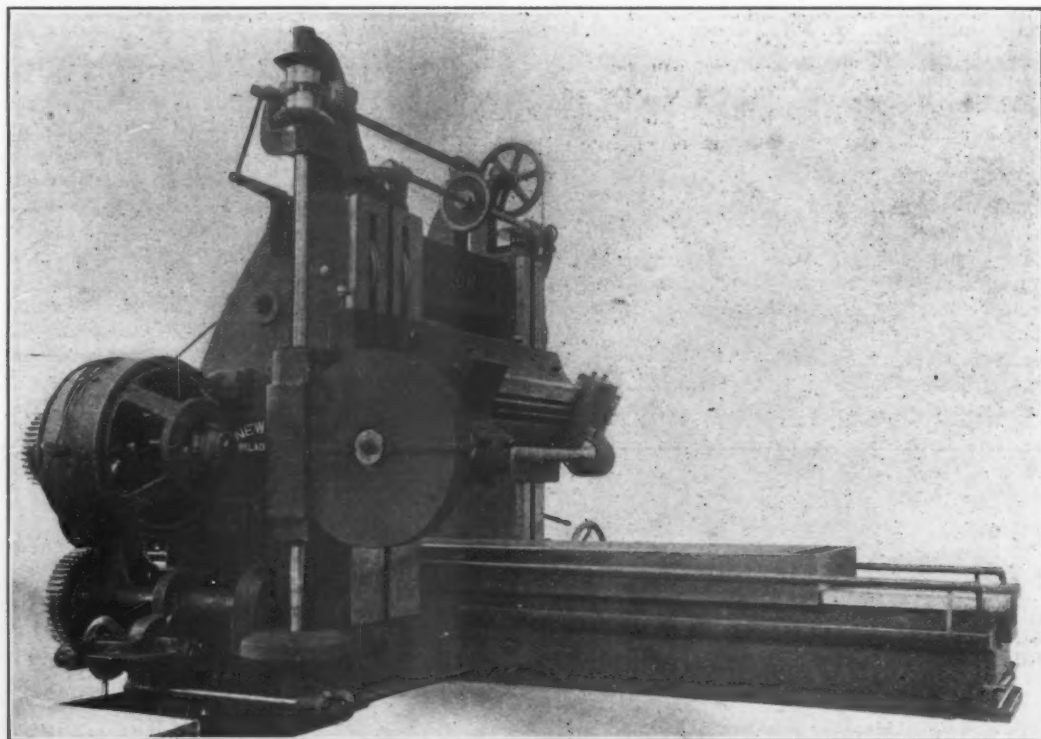


Fig. 1.—The New No. 7 Plain Horizontal Slab Milling Machine Built by the Newton Machine Tool Works, Inc., Philadelphia, Pa.

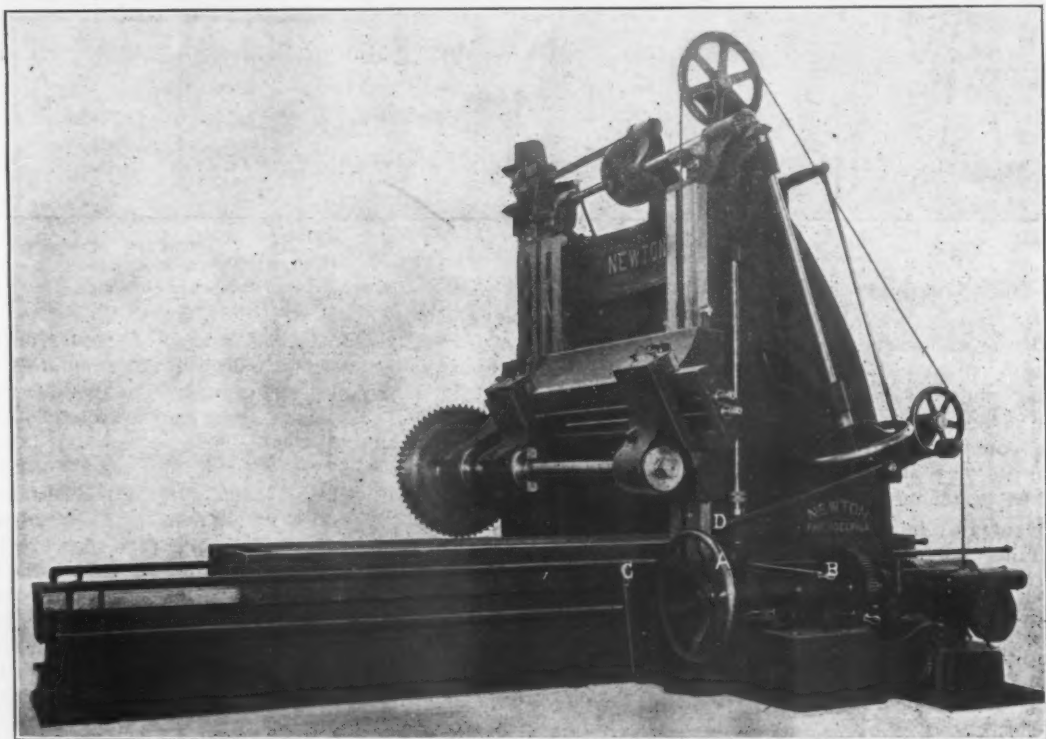


Fig. 2.—View of the Operating Side of the Newton No. 7 Horizontal Miller.

movements of the machine can be controlled from the working side. The spindle of this machine is $8\frac{1}{4}$ in. diameter, having cross adjustment on the rail of 12 in. for convenience in setting the cutters to the work. The spindle is driven by a triple lead-bronze worm wheel of very steep pitch and a hardened steel worm, both of which run continually in oil, through intermediate gearing from a 50-hp. motor, as shown in Fig. 1. The table is spiral gear and rack driven, and has nine changes of geared feed through the speed box shown in Fig. 2.

permits of feeding the table in either direction regardless of direction of rotation of spindle. This clutch is operated through bevel gearing by the lever C, Fig. 2.

When the drive to the feed is disengaged, engaging the feed clutch by lever B holds the table securely in position, a convenience on any work where it is required to sink the cutter into the work.

The cross rail is counterweighted, has reversing power vertical adjustment operated by the counterweight lever D. The elevating screws have roller thrust bear-

ings at the top and bottom bearings. When sinking the cutter into the work, the rail is pulled down, which keeps the screws in tension and eliminates all danger of bending, as would otherwise result from having the screws under compression if the rail were pulled down from the top, as was the former practice without the bottom bearings to the screws. There is also provided a gauge screw upon which are mounted four nuts for adjusting the rail for duplicate depth of cut. The work table of this machine is 42 in. wide and of sufficient length to mill 8 ft. Distance between uprights is 50 in., and distance from center of spindle to top of work table is 50 in. Approximate net weight of machine is 96,000 pounds.

Kesco Steel Floor Plates.

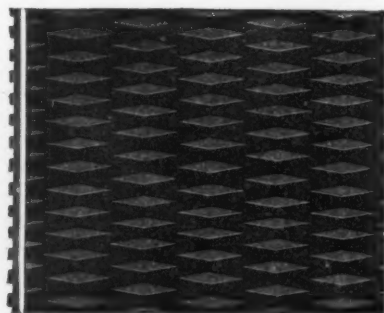
The Keystone Steel Company, whose central and sales offices are at Warren, Pa., has just completed in its mill at Wilmington, Del., the installation of what is claimed to be the largest and most efficient equipment in the world for the exclusive manufacture of wrought steel floor plates and shapes. The vice-president of the company has had extensive experience in floor plate manufacture and has installed appliances which are entirely new and which are very effective in producing flat plates. In the manufacture of these products the Keystone Steel Company will hereafter be a specialist. The company owns

floors in power houses, &c. Heretofore they have been made by contract, but the demand has grown to such an extent that the Keystone Steel Company has arranged to meet the requirements of this trade for prompt service at attractive prices. It is the intention of this company to make practically immediate shipment of all thicknesses from $\frac{1}{8}$ in. to $\frac{3}{4}$ in., and in larger sized plates than it has heretofore been possible for any other mill to furnish.

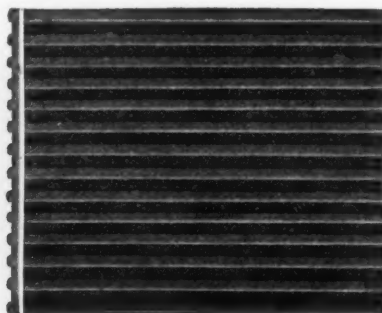
Andrew Carnegie Opposes Steel Duties.

The *Century Magazine* for December prints an article by Andrew Carnegie in which he advocates the abolition of the duties on steel and declares in favor of a tariff for revenue. Following is a portion of his argument:

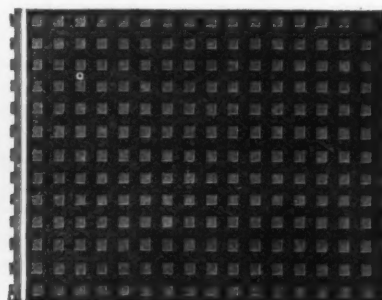
The writer has co-operated in making several reductions as steel manufacturers became able to bear reductions. To-day they need no protection, unless perhaps in some new specialties unknown to the writer, because steel is now produced cheaper here than anywhere else, notwithstanding the higher wages paid per man. Not a ton of steel is produced in the world at as small an outlay for labor as in our own country. Our coke, coal and iron ores are much cheaper, because more easily obtained and transported, and our output per man is so much greater, owing chiefly to the large standardized orders obtainable only upon our continent; the specialized roll-



Diamond Pattern.



Ribbed Pattern.



Checkered Pattern.

Kesco Steel Floor Plates.

patents which it believes cover the only arrangement of rolls known at the present time whereby the diamond ribbed and checkered patterns of steel floor plates and treads can be rolled absolutely flat and straight. They are also sheared accurately to specified size and form, thereby effecting a saving to the users by avoiding the time consuming and expensive necessity, which has previously existed, of straightening and trimming to proper size by hand, after the plates have been delivered. Realizing the importance of accurate cutting to specified size and shape, the company has installed specially built shears of the most improved type and largest capacity.

Illustrations are herewith given of the three patterns of plates now ready for the market and to be known as Kesco plates. The company has adopted as its trademark this word overlaid on a diamond which in turn is overlaid on a keystone. These plates are made of open hearth steel of boiler plate quality. The high ductility of this steel causes it to sag or bend when overloaded, thus giving ample warning of dangerous conditions. The plates are of such strength, however, that a 5-16-in. plate weighing 13 $\frac{3}{4}$ lb. per square foot will carry 222 lb. on a 3-ft. span. Not only do their greater strength and extreme toughness make steel plates much superior to cast iron plates, but the latter have to be drilled, whereas Kesco plates can be punched with an ordinary structural steel punch or cut with a cold chisel. In addition, there is the saving to builders or contractors in the fact that they have 30 per cent. less material to handle, and the further fact as an economical point that the floor and stair supports having to carry so much less load can be lighter. Hardly an article has been brought forward in recent years for building construction which has met with such unqualified approval as wrought steel floor plates for fire escapes, stairways, trench covers in steam heating plants,

ing mills; machinery kept weeks upon uniform shapes without change of rolls, and several other advantages. Britain and Germany are the only important steel manufacturing nations other than ourselves. I am assured by one who has recently examined the matter that he found even in Germany to-day that the cost per ton for labor was greater than with us, unusually high as our wages are at present.

Were there free trade in iron and steel between America and Europe, a few orders might go abroad at times when American mills were fully occupied and high prices prevailed, and this would be advantageous to our country; but if these shipments amounted to much, prices would rise in Europe, and prevent further exports to our market. The United States made last year more steel (over 23,000,000 tons) than Germany, Britain, France and Belgium combined. New steel works are under construction which will produce enough to enable her to make more than the whole world besides. This she will do within five years, probably within three. The day has passed when any foreign country can seriously affect our steel manufactures, tariff or no tariff. The republic has become the home of steel, and this is the age of steel.

It may probably be found that there exists the small manufacturer of some specialty in steel which still needs a measure of protection. The writer hopes, if such there be, the committee will give patient attention to all such cases. It is better to err on the side of giving these too much, rather than too little, support. Every enterprise of this kind should be fostered. The writer speaks only of the ordinary articles and forms of steel as being able to stand without protection. He hopes there are to-day pioneers in several new lines requiring protection which will be generously given temporarily. The committee should welcome such special cases.

Steel Breakages.

The Study of Failures in Service.

A paper was read before the Engineering Section of the British Association, at the recent Dublin meeting, on "The Study of Breakages of Steel Articles." The author, W. Rosenhain, is in charge of the metallurgical department of the British National Physical Testing Laboratory. The paper deals with the subject in a general way, and then emphasizes the argument by several examples drawn from the records of the department. An abstract of the paper follows:

The chief argument in favor of the study of breakages by modern methods lies in this fact that it opens up a large amount of valuable knowledge of the properties of engineering materials not otherwise obtainable. Ordinary investigations do not and cannot reproduce the conditions of actual practice.

In applying the results of these experiments there is left a certain element of uncertainty which engineers reckon with by means of factors of safety, or by modifications of design resulting from practical experience of how such things behave in practice. These methods usually succeed in avoiding failures, but at the expense of economy or efficiency. Breakages show that factors of safety and the results of experience have been insufficient to prevent failure, and it is just the study of these cases that will enable us to correct our views.

Three Main Causes of Failure.

The causes of failure may be classed into three large groups:

1. Defects arising from the manufacture of material.
2. Defects arising from incorrect treatment of the material during the process of construction.
3. Defects arising during the life of the structure or machine.

The first of these groups is, of necessity, a wide one. A few typical cases may be mentioned when dealing with steel. Thus the material may be defective on account of the presence in it of undue quantities of impurities. The distribution of impurities through the metal is also of importance, which leads to the subject of segregation and the soundness of steel. The quality of the steel may also have been seriously impaired by burning or overheating. Under group 2 come the various mechanical processes to which the metal is subjected in the workshops. Punching and shearing, if carelessly performed, give rise to more or less unsuspected weaknesses. Cold working applied even to mild steel, especially if applied at all locally, may be an exceedingly dangerous proceeding.

Turning to group 3, we find some cases in which the most careful investigation can find no sign either of inherent defects or injurious treatment during manufacture or construction. In these cases the material has been subjected to undue stresses while in use and has naturally failed. Actual faulty design is probably one of the rarest of these cases. More frequent, and, therefore, more serious, are the operations of forces which do not readily lend themselves to calculation, such as the heat expansion and contraction arising in steam boilers and to a lesser extent in all heat engines.

In illustration of these general considerations four examples of failures, which have been investigated in this manner, will be described:

Case 1.—A Large Gun Failure.

The first case is that of the inner tube of a large gun which developed internal cracks after an abnormally short life. Mechanical tests were carried out consisting of tensile tests on pieces cut parallel with, and at right angles to, the axis of the tube. Alternating stress tests were performed on pieces cut the same way, and a special test producing the working conditions and consisting of a repeated tensile test. The tests as a whole show that the material is weak as regards elastic limit and ultimate stress, and much below normal material.

The resistance under alternating stress is somewhat low, and the special test shows the material is very weak under repeated shock, being approximately as weak as wrought iron. The greater part of the inner surface was

polished with fine emery paper, when a large number of cracks were revealed running in every direction, showing that the failure was not due to any localized flaw or defect. Eight sections were then prepared for microscopic examination, together with two sections from a tube which had given good results. The general structure is quite normal, both as to size of grain and interlocking of constituents. It was found to be impossible to trace the course taken by the main fracture among the constituents. The steel, however, shows in a marked degree two features nearly always seen in commercial steels, namely, (1) minute black holes in the polished surface, and (2) grayish green inclosures of foreign matter. The small holes are very probably connected with the mechanical properties. This view is strengthened by microphotographs, where cracks, ramifying from the main fracture, are seen to run from one to another of these black marks. The grayish green globules are seen in both the normal and broken gun tube, but particularly so in the latter. In some of the specimens from the broken tube it is impossible to find a square millimeter free from them. It is believed that these are particles of slag which have not been able to free themselves from the molten steel.

Tests by heat tinting show the absence of ghosts or phosphorus segregation. The analysis is as follows:

	Per cent.		Per cent.
Carbon	0.41	Phosphorus	0.03
Silicon	0.11	Manganese	0.53
Sulphur	0.05		

This must be accepted as a satisfactory composition.

The microscopic evidence, when correlated with the results of the mechanical tests, leads to the conclusion that, as regards composition, heat treatment, and mechanical treatment, the steel of the fractured gun tube is normal. Its strength, however, is seriously impaired by the presence in its mass of a very large number of slag inclosures. The premature failure of the tube is ascribed to this defect, which is due to the original condition of the ingot.

Cases 2 and 3.—Roller Plate and Crank Pin.

The second case is that of a boiler plate, which by local deformation had been so weakened that it subsequently failed in use.

The third case is that of a locomotive crank pin, which broke off in service, with an apparently clean, fairly smooth, fracture. The outer layers of the pin were case hardened, so that it was impossible to subject them to mechanical examination. The analyses show nothing to indicate defective or unsatisfactory material, and the mechanical tests also indicate steel of satisfactory quality. Several sections were cut for microscopic examination, both longitudinally and transversely. The general structure is normal except for two features. One is the great angularity of the ferrite areas, and the other is the sorbitic nature of the pearlite. The first is detrimental, but is counterbalanced by the latter. Both these special features are due to the case hardening and subsequent quenching which the steel has undergone. The structure of the case hardened layer is typically martensite, well defined needles crossing at 120 degrees. It is characteristic of steel which has undergone very vigorous hardening treatment, and is suggestive of quenching from too high a temperature. In the transverse section hardening cracks become apparent at once, extending in many cases through the entire thickness of the hard case. In order to examine the pin from this point of view the surface was polished and examined with a low power microscope. The whole surface was found to be covered with a network of cracks, some of them of considerable size.

The general character of the cracks and their distribution, together with the thermal history of the pin as revealed by the microstructure, lead to the view that they were caused by the hardening process employed. It further appears probable that the fracture of the pin arose from the development of one or more of these cracks under the influence of the working stresses.

Case 4.—A Large Shaft.

The fourth example is that of a large shaft, intended to run at a high speed and to transmit a large amount

of power. It ran satisfactorily for a time, but ultimately fractured through a portion 12 in. in diameter. The fracture was peculiar in having an outer ring a little over an inch wide, which was very smooth and fine grained. The central portion of the shaft had broken with a very rough coarse grained fracture. The average chemical analysis is as follows:

	Per cent.		Per cent.
Carbon	0.49	Phosphorus	0.04
Silicon	0.13	Manganese	0.71
Sulphur	0.04	Arsenic	0.03

The outer layer and the bulk of the material show no marked difference in composition.

For microscopical examination a slice of the material was cut, running radially outward from the center of the shaft, and abutting on the fracture. The portion of steel lying near the outside of the steel was found to possess a small regular structure, characteristic of good steel of this grade. At a depth inward, varying from ¼ to 1¼ in., however, the satisfactory structure begins to be interspersed with patches of very large coarse crystals. As the section is followed inward these patches increase rapidly in area, until they occupy all the section. The transition from one structure to the other is very rapid.

Tensile test pieces were cut from the shaft as near the fracture as possible. No. 1 consists in great part of the steel having the fine microstructure, while No. 2 is from the coarse structured interior. The results were as follows:

	Elastic limit.	Ultimate stress.	Elongation. Per cent. on 2 in.
No. 1.....	46,000	93,700	14.0
No. 2.....	50,200	94,700	7.5

The figures show that the steel possesses a very low ductility, and they entirely confirm the deductions from the microstructure. The coarse structure of the interior is sufficient to account for the low ductility, and is also particularly weak under shock or alternating stresses.

The smooth outer ring of the fracture is not of uniform width, so that the outer layer of better material is not placed concentric with respect to the axis of the shaft. This fact has probably contributed to the failure of the shaft, since the unsymmetrical distribution of two metals of very different mechanical properties would lead to an unsymmetrical distribution of stresses. Undoubtedly also

An unusually heavy bottom is provided in the morocco leather covered containing case, to allow for screwing the supporting plugs firmly into the disks before removing them from the case. The plugs are numbered on top to correspond with the disks which they fit. All of the fig-

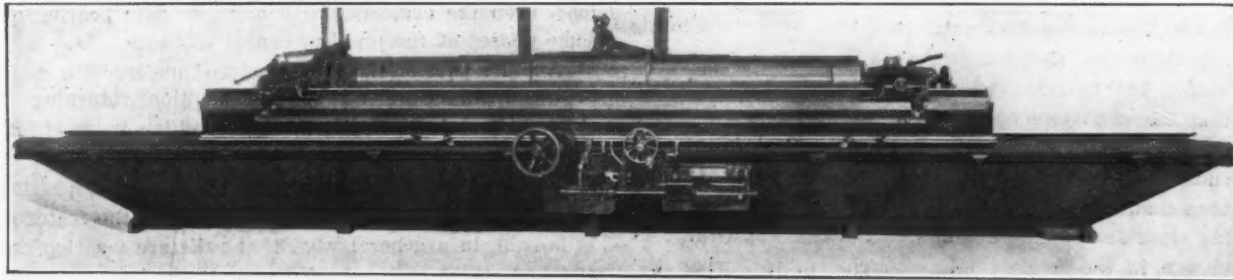


A Set of Reference Disks for Gauge Testing Made by the J. T. Slocumb Company, Providence, R. I.

ures are plainly to be seen when the box is opened, so that the required ones can be easily selected. Where a complete set of reference disks is not desired any of the sizes can be furnished singly.

Notable Grinding Work.

In *The Iron Age*, August 27, 1908, there was illustrated and described the 20 x 192 in. plain machine for cylindrical grinding built by the Norton Grinding Company, Worcester, Mass. The view herewith shows one of these machines as it appears in service in a large en-



A 20 x 192 In. Norton Cylindrical Grinder Engaged in Finishing a Heavy Engine Shaft.

the unsatisfactory quality of the steel contributed largely to the failure.

The above four examples have been taken from a considerable number and are given to show the extent to which the application of modern methods renders possible the detection of the causes of apparently mysterious failures.

G. B. W.

Slocumb Reference Disks.

For keeping in accurate adjustment and testing micrometer callipers and other gauges, the J. T. Slocumb Company, Providence, R. I., has brought out a new set of reference disks, as they are called. The disks are made of a good quality of tool steel, made extremely hard, and after becoming properly seasoned they are finished to a very high degree of accuracy. A sufficient thickness is given to these disks to insure their durability. Those ¼ and 5-16 in. in diameter are made in one piece with a handle. Handles to fit the larger disks are included with the set. Each disk is marked with its diameter expressed both in common fraction and decimal equivalent.

gine building works. A large engine shaft which has just been ground is shown in the machine in the illustration as it appeared when finished. This shaft weighs 8000 lb., is 13½ ft. long, 17 in. in diameter at the center, and 15, 14 and 13¾ in. in diameter respectively toward the ends. With the grinding wheel 1-32 in. was removed from each diameter. The limit of error from exact size allowed on all diameters was 0.001 in.

The grinding time was 6 hr., including the time required for measuring the various diameters. The entire time required for setting up the machine, putting the shaft on centers, grinding the shaft and taking the shaft out of the machine was 8 hr.

A demonstration of the Menne oxygen torch for opening tuyeres took place at Pottstown, Pa., recently at the works of the Warwick Iron & Steel Company. It happened that one of the tuyeres was closed. It was quickly restored. The method has also been shown at the plant of the Lackawanna Steel Company at Buffalo. Since oxygen is now being made on a commercial scale in this country the Menne process is likely to be widely adopted.

THE IRON AGE

Established in 1855.

New York, Thursday, November 26, 1908.

Entered at the New York Post Office, as Second Class Mail Matter.

DAVID WILLIAMS COMPANY,	-	-	-	-	-	PUBLISHER
14-16 PARK PLACE, NEW YORK						
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Inducements to Workmen in Open Shops.

In a comment on the work of employers' associations in the metal trades which have committed themselves to the principle of the open shop it was said in these columns one year ago, after the annual convention of the National Founders' Association:

In the trying time upon which the foundry industry and all industries have entered, the National Founders' Association will have the chance to demonstrate that it is prosecuting no opportunist campaign, and seeking no temporary advantage from untoward conditions. Rather it will have the chance of its career to show that its policy is constructive and permanent and that in seeking the improvement of foundry conditions it contemplates nothing less than the permanent betterment of the condition of the foundry employee.

Evidence was given at the convention of this association last week that efforts to make the open shop a more desirable place in which to work than the closed shop are being practically put forth by many of its members. It was evident that such proprietors are not looking for cheap men or aiming at a low daily wage rate. "It is not a reduction of wages that we seek, but a reduction in cost," as one speaker put it, and his instructions to his superintendent and foremen have been, not to reduce wages, but to make wages and shop conditions better than his employees could get in other shops. No better proof can be given of the honesty of the position assumed by an employer who takes issue with the union than that he maintain the same policy after he has freed his plant from union domination that he was willing to pursue in the intermediate or strike period, when the outcome of the struggle was not so clear. There is wisdom in the counsel now given the members of the National Founders' Association by their officers, which is in effect that future conditions in their shops will depend on the future attitude and performance of the employers.

If anything has been learned by the labor conflicts of the past 10 years in the foundry industry, or in any industry, it is that any advantage secured by either side through sheer superiority of resources or through control of the situation due to temporary favoring conditions will remain with that side for only a time. The employer's title to peaceful relations with his employees and to steady and efficient operation of his plant must rest on the inducements he holds out to his workmen. Similarly the union's hold upon a shop must be something stronger than coercion if it is to continue. The unions, if they could guarantee an employer the best workmen and the largest output of good product, would make such an inducement to him to co-operate with them as could not be strengthened by any closed shop agreement. The weakness on both sides is the effort so frequently seen

to hold the whip hand, without regard to mutuality of benefit.

The Flow of Steel Through Consumption.

The steel industry has in recent years reached such magnitude that the present and prospective movement of some forms of its products can be studied with considerable confidence. Thus there is an aggregate of millions of tons of structural steel involved in office buildings, and a considerable proportion of the total urban population spends a part of each business day in such structures. There is an output of from 500,000 to 600,000 gross tons of tin plate annually, the great bulk of which is absolutely consumed within a twelvemonth or so after production. A very large tonnage of pipe, both steel and cast iron, is buried each year for the conveyance of water and gas. About 35,000 to 40,000 tons of cotton ties are manufactured annually, to pass through a short life in that form. For many years the annual tonnage of steel rails has run into the millions, while of late years the tonnage of light rails has run into the hundreds of thousands.

The conditions surrounding the employment of some of these large tonnages can be studied, in the light of available statistical information, to considerable profit, particularly as a help to forecasting future demands upon the steel manufacturing and reworking industry.

One must avoid the conception, on the one hand, that steel once made and used for the purpose intended is lost from the reckoning through being absolutely consumed. Another extreme view must be avoided, that steel once made and used is put into permanent employment and will not require replacement or renewal. Each product or use must stand by itself. The great bulk of some material, like tin plate and fence wire, is absolutely lost; a large bulk of other material, like fabricated steel in bridges and office and hotel buildings, is destined for a very long life without disturbance; how long, even the engineers with accurate data bearing on some phases of the problem cannot estimate.

Another part of the steel produced undergoes a more or less regular flow through consumption, returning to obtain a fresh lease on life through rerolling or remelting. The tendency toward such a movement on the part of steel rails has long been recognized, but by a passing glance rather than with careful scrutiny of the features. It is said, in a general way, that rails are wearing out and have to be replaced. No such generalization is useful, because there has not been opportunity, through actual contact, for the trade to become familiar with the movement. There has not been such experience, over a period of years, of rails wearing out, as would be any guide whatever to the future. In the first place, the movement of rolling stock over the rails has been undergoing a very rapid increase. The ton mileage of freight moved over the railroads in the fiscal year 1907 was just one-fourth of the ton mileage in the ten years 1890 to 1899, inclusive, so that rails are, roughly speaking, being worn out two and a half times as fast as they were only a few years ago. Then, again, it takes quite a while to wear out a rail, and if the road is not much used, and has been laid with standard rails within a decade or two, it may be long before it wears out any considerable percentage of such rails. The Middle States have a freight ton-mileage per mile of road more than five times that of the Southwestern and Pacific States.

There is no evidence in the mere amount of demand experienced for rails as to what condition caused the demand, or as to what end the rails are to serve. It is not

difficult, however, to take stock and to approximate, roughly, the position. Production, imports and exports, have been as follows since steel rails were first made:

United States Steel Rail Statistics to January 1, 1908.

	Gross tons.
Production	54,300,000
Imports	1,600,000
Total	55,900,000
Exports	3,000,000
Balance	52,900,000

The figures above do not, of course, include iron rails. The use of iron rails is practically a closed incident. Something like 10,000,000 tons of iron rails have been laid in this country and less than 1,000,000 tons survive.

The 52,900,000 tons of steel rails put into use in the United States include a quantity, probably somewhat less than 1,000,000 tons, of rerolled rails, thereby constituting a duplication in the summary. Only in the past 10 years more than 2,000,000 tons of rails lighter than 45 lb. per yard has been rolled, including the major part of the rerolled rails. Light rails, however, have figured largely in the exports. Then there has been a considerable tonnage of rails which has not gone to railroads, but has been used in various industrial operations, so that it seems fair to make deductions from the above total and to proceed on the assumption that there have been furnished to the railroads a round 50,000,000 gross tons of steel rails. Has much of this tonnage worn out, or is it just beginning to wear out, with a freight ton-mileage in 1907 more than double that of 1898?

On December 31, 1907, there was in existence 314,713 miles of standard steam railroad track laid with steel rails, and 38,812 miles of electric, cable, elevated and horse car track, presumably laid with steel rails. It would be very convenient to know the average section of rail in this track, so that the tonnage in existence could be subtracted from the tonnage furnished, leaving a close approximation to the wear, but such information is not available, and it is necessary to proceed in the other direction, and see what would be the section if no steel had been lost. The 100-lb. section is convenient for reference. A mile of track in this section requires 157.13 gross tons of rails. Then we have:

	Tons rails.
314,713 miles of steam track	49,455,000
38,812 miles of electric, &c., track	6,100,000
Total	55,555,000

Of course it did not require the disclosure of this discrepancy to show that the average section is not 100 lb. There would be involved 5,555,000 tons more than we started with. Reducing the average section by 10 per cent., to 90 lb., would bring us out exactly even. The average section is less than 90 lb., and there has been some wear. The amount of wear of steel rails necessitating replacement, on all the steam and other roads of the United States since steel rails were first laid, is represented by the percentage of 50,000,000 tons by which the average section is below 90 lb. It may be 10 per cent. or 20 per cent., 5,000,000 tons or 10,000,000 tons; it is doubtless within those limits, and leaves between 40,000,000 and 45,000,000 tons in actual service. This includes the electric and other roads not steam roads, while on the other hand, it excludes 9320 miles of steam railroad track which is still in iron rails.

It is obvious, then, that there has been no wear and replacement of steel rails, in the country at large, which would constitute any guide to the future. Some index may be found, however, in the case of an individual operation where the conditions may be scrutinized. The Pennsylvania system, embracing 11,176 miles of road, with a ton-mileage in the calendar year 1907 of 37,674,511,903,

nearly one-sixth that of the entire country, furnishes some interesting data. Railroads in general have been replacing light rails with heavier rails; the rail taken up may not be worn out, but merely too light, while if worn out the new and heavier rail will not wear out so quickly. The Pennsylvania has more nearly passed out of that stage than have most roads, most of its replacements being of rails which were worn out and were not too light. It gives annual statistics of the rails used for replacement, these averaging, in the four years ending December 31, 1907, 138,085 tons a year, while the freight ton-mileage in the same years averaged 31,307,000,000. The Pennsylvania, then, has laid a ton of rails for every 226,720 ton-miles of freight traffic. It may be wearing out rails faster now than it did a few years ago; but, on the other hand, it did replace some lighter rails with heavier rails, and got its tracks in such shape that this year it has had to do very little replacing. Dividing the freight ton-mileage of the entire country in the year of heaviest traffic yet experienced, 233,138,000,000 in the fiscal year 1907, by the factor just found, the quotient 1,028,300 is obtained. Rail wear, then, has some fairly close relation to 1,000,000 tons a year, with the heaviest traffic yet experienced.

If the quality of rails is greatly improved, the wear may be less, while if traffic increases much the wear will be more. There is a prospective flow of steel through consumption as rails of something like 1,000,000 tons a year. The rails as taken up will weigh, perhaps, 15 per cent. less than when laid, representing the actual dispersion of something like 150,000 tons of steel a year. That steel will never be regained. The remainder will be available for rerolling into light rails, reinforcing concrete bars, bedstead, windmill and other sections, &c., and for remelting.

As this case of rail wear is one of coating surfaces, it may be interesting to note that while the car wheels, having a very hard tread, lose relatively little metal, they do wear out from the rolling friction and the braking, and as they can spare very little metal, probably less than 3 per cent., or less than 25 lb. for a 700-lb. wheel, they come back rather quickly. Freight car mileage statistics for the entire country are not available, but dividing the ton-mileage mentioned above for 1907 by an approximation of the average load, loaded and empty, it appears that the freight car mileage was about 16,000,000,000, and multiplying this by the number of wheels per car and dividing by 70,000, an estimate of the life of a wheel which wears out gives 1,830,000 as the number of wheels which would wear out normally under such traffic. To this should be added an estimate for breakages, indicating that with the continuance of such traffic more than 600,000 gross tons of car wheels annually would be rendered unfit for service. The flow has been large right along, but has attracted little general attention, as it is almost wholly from railroad to wheel foundry and back again. If steel wheels should be generally adopted more of the flow would likely be through the general market, as there would not be the same incentive for a steel wheel manufacturer to use old steel wheels as exists in the case of the cast iron wheel foundry.

The iron and steel trade has but lately arrived at a point involving these large tonnages. The pig iron production of 1907 was more than double that of 1898, only nine years earlier; the steel production of 1907 was much more than double that of 1900, only seven years earlier, while the doubling of the open hearth steel output required only five years. The output of structural material doubled in seven years to 1907, while the doubling

in wire took 10 years. These varying movements place the industry continually in new aspects. It is evident that one of the great movements of the future will be the flow of steel through a form of consumption and back into the rolling mill or furnace.

The Buying of Battleship Machinery.

Should the Navy Department decide to construct the machinery for the battleship Florida at the New York Navy Yard, as reported to be the probable outcome, there will be good ground for criticism. Under the provisions of the act authorizing the construction of two first-class battleships, it is required that one of the vessels be built at a Government yard, but it is understood that the authorities have the option of awarding the machinery contract to private manufacturers. If this alternative exists, and the Department persists in excluding the private bidder, few engineers would maintain that there can be any outcome but waste of money and probable delay in time of completion. There can never be any advantage in the manufacture of highly specialized equipment in shops which are not specially fitted for the purpose and by men who have not had the experience necessary to become experts in the work.

The engines which will propel this battleship will be of the turbine type. It is not to be presumed that the navy yard engineers have the knowledge of the newer types of marine motors that is possessed by those men who have developed them to the point of practical usefulness in large units. The expense of costly machinery with which to fashion them is a factor, and so is the matter of patent rights. The additional cost of labor resulting from the eight-hour rule for Government employees and their lack of experience on special classes of work are by no means negligible quantities. Ultimate results are very important; machinery must be perfect in detail, else one of the four splendid ships of the new class already provided for will be seriously handicapped in active service. And, as already mentioned, time of construction is considered by naval men a very essential consideration. The Government has built one battleship at Brooklyn, the Connecticut, a much smaller vessel than the Florida, with reciprocating engines of considerably smaller power. The time of construction closely approximated that of a contemporaneous ship built by private enterprise. But a new record of building has been established under the contract system. The recent accomplishment of the Fore River Ship Building Company with the North Dakota, of 282 working days from laying of keel to launching, has demonstrated what may be looked for in the future in American yards. Experience and specialized effort have made possible these strides toward records now commonly made in the building of British ships. It is hardly to be expected that the navy yard will do as well; probably the most ardent advocate of Government construction of warships will feel little confidence that the naval engineer will be able to overcome the handicaps with which they must be surrounded in the work.

There is really small argument for the building of machinery for battleships in a navy yard. If the logic of the contention were sound, to be consistent the Government should continue the scope of its work through the specialized products, even to the machine tools which go into the battleship's repair shop, and the electrical apparatus and the hundreds of minor details of the equipment which are always purchased. The engineers of the great private works which build engines

are, as a matter of course, better able to handle large problems of manufacture than the engineers of the navy, whose training must be somewhat that of jack-of-all-trades rather than of the specialist, as the word is understood nowadays.

Then again there is the persistent consideration, which is a strong one, that the Government is under obligation to the private concerns which have built up great establishments for the building of warships, just as it is under obligation to the manufacturers of armor plate. The present condition of the shipbuilding industry in this country, due to the existence of ship subsidies and lower wages in other maritime countries, and the absence of Government assistance to the merchant marine of the United States, makes it almost imperative that the Government give its business to the private yards, if they are to continue in the business. They are important adjuncts of the country's naval establishment. In time of war their absence would be a very serious matter. They are the bidders for the Florida's engines. On the other hand, it has not been shown that the nation saves money or gains in any other way in building its own ships. Even if it were true that it is a good policy once in a while to demonstrate or improve the efficiency of a naval station by the construction of a warship, the work should be rather one of assembling than the undertaking of the work complete, as it is included in the contract to a private yard. Where Government works are established on a scale sufficient to supply the greater part of the demand, as is the case with the gun factories, arsenals, the anchor and chain and the rope works, private capital is not needed to help out excepting with certain appurtenances or under somewhat exceptional conditions. But there would appear to be no necessity for the Government to enter into competition with its established manufacturers for its marine engines and other machinery which it cannot undertake to build on a large scale for all of its requirements. The naval engineer must borrow ideas; they cannot hope to originate much that the experts in the various branches of machine design have not already accomplished. If such is the case, the logical conclusion is that private establishments should be permitted to reap the rewards of their initiatory labors and investment, and the workmen they have trained as specialists be allowed to earn the wages which Government contracts would bring to them.

The C. & G. Cooper Company, Mt. Vernon, Ohio, is installing two tandem compound steam engines of 3000 hp. each in the plant of the American Steel & Wire Company at Braddock, Pa., and is also installing two 4000 hp. and one 2500 hp. tandem compound engines in the rail mill of the Edgar Thomson Works of the Carnegie Steel Company at Bessemer, Pa.

The Watertown Engine Company, Watertown, N. Y., has been reorganized under the name of the New York Engine Company and will be operated as an adjunct to the New York Air Brake Company, and under the same management. It is understood that a little later its plant will be equipped for the manufacture of electrical apparatus used in connection with the airbrake business.

The Northwestern Equipment Company, St. Paul, Minn., is establishing a branch office at Minneapolis where, in addition to electric supplies, engines, boilers and electrical machinery of all kinds will be handled.

The Erie City Iron Works, Erie, Pa., manufacturer of steam engines, boilers and feed water heaters, has received since the election orders for 244 boilers of various sizes and styles.

TARIFF HEARINGS AT WASHINGTON.

Written and Oral Statements on the Metal Schedule.

After preliminary meetings at Cleveland, Pittsburgh, Philadelphia and other leading producing centers during the past week, there were more general conferences of iron and steel manufacturers in New York on Monday and in Washington on Tuesday, Willis L. King of Pittsburgh guiding the deliberations. The object was to select the representative producers who were to place before the Ways and Means Committee the arguments bearing upon the different branches of the industry. It will be observed from the following list that experienced iron and steel makers were chosen, but that there are not included in it any of the officers connected with any of the different subsidiary companies of the United States Steel Corporation:

WILLIS L. KING, vice-president Jones & Laughlin Steel Company, Pittsburgh, for steel shapes, plates and bars.
 F. S. WITHERBEE of Witherbee, Sherman & Co., New York, for the Eastern ore producers.
 WILLIAM MATHER of Pickands, Mather & Co., Cleveland, Ohio, for the Western iron ore producers.
 JOSEPH G. BUTLER, JR., of Brier Hill Iron & Coal Company, Youngstown, Ohio, for pig metal, scrap and ferroalloys.
 JOHN A. TOPPING, chairman Republic Iron & Steel Company, Pittsburgh, for billets, blooms, slabs and sheet bars.
 E. C. FELTON, president Pennsylvania Steel Company, Harrisburg, Pa., for steel rails.
 EDWARD BAILEY, president Central Iron & Steel Company, Harrisburg, Pa., for steel sheets and plates.
 ISAAC M. SCOTT, president La Belle Iron Works, Steubenville, Ohio, for steel sheets.
 W. J. FOLLANSBEE of Follansbee Bros. Company, Pittsburgh, Pa., for tin andterne plate.
 J. A. CAMPBELL, president Youngstown Sheet & Tube Company, Youngstown, Ohio, for pipe and tubular products.
 CHARLES ROEBLING, president John A. Roebling's Sons Company, Trenton, N. J., for wire and wire products.
 WILLIAM G. PARK, chairman Crucible Steel Company, Pittsburgh, Pa., for crucible steel.
 WALLACE H. ROWE, president Pittsburgh Steel Company, Pittsburgh, Pa., for hoops and cotton ties.
 JAMES LORD, president American Iron & Steel Mfg. Company, Lebanon, Pa., for iron bars.
 WM. L. WARD of Russell, Burdall & Ward Bolt & Nut Company, Port Chester, N. Y., for bolts and nuts.

It is understood that the Ways and Means Committee is desirous particularly to obtain data bearing on costs, but since only a short notice was available to the producers, it is likely that briefs more formal in their character will be submitted later on. These may be filed until December 4, to be included in the printed record of the committee.

The steel schedule is attracting a good deal of attention, and the situation has been very much complicated by the publication of abstracts of an article to appear in the *Century Magazine* from the pen of Andrew Carnegie. The report was current that Mr. Carnegie had come to Washington at the invitation of the committee and for a while the steel manufacturers were on the tip-toe of expectation. It is idle to deny that Mr. Carnegie's article has had a very serious effect upon the popular mind as bearing upon the question of just rates of duty and that no amount of expert testimony is likely to efface the conviction that Mr. Carnegie is justified in his statement that steel can be produced in this country as cheaply or more cheaply than anywhere in the world. Mr. Carnegie has not been connected with the industry for years and has not kept pace with developments which have been most striking in Germany. It is pretty well understood by those who are familiar with conditions on both sides of the Atlantic that the fighting cost, adding freight to tidewater shipping port, to supply the world's neutral markets is lower in certain districts both in England and in Germany.

C. K.

MR. CARNEGIE DECLINES TO APPEAR.

WASHINGTON, D. C., November 25, 1908.—(By *Telegraph*).—At the opening of the hearing on Schedule C, Metals and Manufactures Thereof, before the Ways and

Means Committee this morning, Chairman Payne made public the following correspondence:

NEW YORK, November 24, 1908.

Hon. Sereno Payne, chairman Tariff Committee, House of Representatives, Washington.

DEAR SIR: Thanks for your kind invitation to appear before your committee upon the pending tariff changes. I have served my full time in Washington upon tariff matters and beg to be excused from further service in that direction. I am no longer in business, and in my *Century* article, companion to that of "My Experience with Railway Rates and Rebates," I have said all that I have to say upon the subject. Manufacturers will appear before you from whom you can obtain required details. Reading the comments upon my article by various distinguished gentlemen in Washington, as published in yesterday's *Tribune*, I see they have not yet read the article itself, but only a few striking extracts separated from the context. When you read it you will discover that my faith in protection, wherever it is proved to be necessary, is as strong as ever, and that I continue also to believe that the surest way to secure needed protection is to reduce protective duties from time to time and finally abolish them when no longer needed. Pursuing this policy, our party has already reduced the duty upon steel rails from \$28 to \$7, and other duties in greater or less degree. The McKinley tariff, which made great reductions, is a case in point. It would prove false to its history and its pledges if it failed now. In the most critical times the protective policy has received indispensable aid from patriotic Democrats in Congress, as I have shown. This is as it should be. Duties upon imports should cease to be a party question. Only what is best for our common country should be thought of. I attach supreme importance to the maintenance of present duties upon luxuries used chiefly by the rich, not from the protective, but from the revenue point. Special attention is required to the revenue needs of the country these days to meet increased expenditures, and as far as I know none can be obtained with so little pressure upon the people as the two hundred and odd millions now flowing into the treasury from such articles. Yours, as a true protectionist.

(Signed) ANDREW CARNEGIE.

TO MR. ANDREW CARNEGIE:

DEAR SIR: Your letter of the 24th inst. received. I regret that you decline to come before the committee, as we are anxious to get all the information possible upon this schedule, as upon all other schedules of the tariff. You were invited because we thought you could give, in answer to questions, further information than that contained in your article. We are seeking all the information possible from every intelligent source and welcome the attendance of any citizen, whatever his views may be upon the question of tariff rates. Of course the committee in adjusting rates must be governed by the facts presented. As I shall give out your letter for publication to-day, I may also give out a copy of this letter to be published with it, as I wish the widest publicity given to the fact that this committee is anxious to get all the information possible upon any phase of the tariff question. Yours very truly, SERENO PAYNE.

The first witness on the iron and steel schedule was Willis L. King of the Jones & Laughlin Steel Company, Pittsburgh. His statement was followed closely by the members of the Ways and Means Committee, of whom there were present Messrs. Payne, of New York, chairman; Daltzell of Pennsylvania, Boutell of Illinois, Hill of Connecticut, Calderhead of Kansas, Needham of California, Gaines of West Virginia, and Longworth of Ohio, Republicans, and Clark of Missouri, Cockran of New York, Underwood of Alabama, Griggs of Georgia, Pou of North Carolina, and Randall of Texas, Democrats.

STATEMENT OF WILLIS L. KING.

The statement of Mr. King is as follows:

"As I am the first of the iron and steel manufacturers to appear, I would like to say that it was only possible to get a rather full meeting of the steel manufacturers, and the different interests connected therewith, in New York yesterday, and it was decided to accept the invitation of the committee to come down here and give them what information we could in the formation of another tariff schedule. Bearing in mind the request of the committee that a large delegation be not sent, one man was selected from about each of 12 or 15 different branches that will appear here to-day.

"For myself I represent the corporation of Jones & Laughlin Steel Company of Pittsburgh, which manufactures largely steel bars, plates, &c. I would like to talk with your permission on these articles. For some reason which

does not appear to me, the tariff of 1897 placed steel bars, a finished product, in the paragraph with blooms and billets and other semifinished products, taking a duty of three-tenths of a cent a pound when valued at 1 cent per pound or less, and four-tenths of a cent per pound when valued above 1 cent and not above 1 4-10 cents per pound. There is no good or valid reason at present for the difference between the duty on steel and iron bars, and I would ask, on behalf of our company and the other manufacturers whom I have consulted, that the minimum duty on steel bars be advanced to four-tenths of a cent per pound instead of three-tenths of a cent.

"I would say, however, that I am a little unfortunate in asking for an advance on the first article in the schedule that I am talking about, but I want to assure the committee that I heard the discussion among the other manufacturers in New York yesterday, and they came here prepared to make recommendations for large, and in some cases radical, reductions in the present tariffs in their lines. So I do not want you to feel that all the steel manufacturers here ask for increase in duty.

"I am advised by recent cable quotations that steel bars can be purchased within a few days at at least 1 cent per pound f.o.b. vessel, at Antwerp. The freight is practically 8 shillings or \$2 a ton, which would lay them down at New York at 1 1-10 cents per pound, and adding the duty at present of three-tenths of a cent per pound would make the price of Belgian bars in New York, duty paid, 1 4-10 cents per pound, which is less than the low price of the American or domestic product to-day. That is the reason why I think the duty on these should be advanced. Another reason for the advance asked for is the danger of foreign makers dumping this product at prices much less than their home market at times when we most need the tonnage to keep our mills running and our labor employed. Before going to plate and structural iron, perhaps it would be better for you to ask me any question that may occur to you and which I will try to answer."

Mr. Dalzell: "This is an improper classification in the present tariff?"

Mr. King: "I think so. I think that a finished product ought to be taken out of the unfinished class and put in the finished products class. In fact, it ought to be in with iron bars, although iron bars, I think, require a larger proportion of labor. And while I do not speak for the manufacturers of iron bars, it may be possible that they think that reducing the duty from six-tenths of a cent, as it is now, to four-tenths of a cent would be too much of a reduction. I think they perhaps would be justified in asking a larger duty on iron bars on account of the larger amount of labor that is spent upon them than upon steel."

The Chairman: "Then there are inequalities in the iron and steel bar schedules?"

Mr. King: "At the present time yes."

The Chairman: "They are not properly classified, and you suggest that it be classified with what?"

Mr. King: "With iron bars; that steel bars should be put in the same paragraph with iron bars, they both being finished articles."

The Chairman: "Would that lower or raise the duty?"

Mr. King: "I am asking for four-tenths of a cent on steel bars. If iron bars were put at the same price, that would lower the iron bar duty two-tenths of a cent a pound, or \$4 a ton. But I qualified that statement by saying that I hardly thought it was fair to reduce the iron bar schedule to that point, because there is more labor expended in the manufacture of iron bars than of steel."

Mr. Boutell: "The present duty of three-tenths of a cent a pound on steel bars under the Dingley law is the same exactly that it was on the preceding law, the Wilson law."

Mr. King: "I did not happen to know that."

Mr. Boutell: "It is therefore the same duty that has been in existence now for 14 years."

Mr. Underwood: "As a matter of fact, therefore, the iron and steel schedule is the same to-day as it was under the Wilson bill, is it not?"

Mr. King: "Well, I happen to know of some articles that were in the same schedule, but I really have not compared them all."

Mr. Boutell: "Girders are less and cast iron pipes are less than under the Wilson bill."

Mr. Underwood: "I want to ask you this question in reference to a comparison with the steel industry. I want to know what is the production of steel bars in the United States."

Mr. King: "It is the largest single article produced in the United States, and I presume that that holds true over the world; that is, that there are more bars made than any other single thing. I would say that the combined product of steel and iron bars would be 5,500,000 to 6,000,000 tons. I am speaking now of normal times."

Mr. Underwood: "I will ask you some questions with reference to the year 1907, because of course we all recognize that the panic condition prevailing in this country now is not a condition upon which to base an estimate. So I will consider the question that I ask as relating to the year 1907. The

total production of bars in this country amounts to 5,500,000 to 6,000,000 tons. What is the amount of total importation into the country?"

Mr. King: "Comparatively small. I have not the exact figures."

Mr. Underwood: "I see here, in this compilation that I have before me, that the importations are given, under the total heading for billets, blooms and bars, as 41,000,000 lb., which would only amount to 20,000 tons. That includes billets as well as bars, so that the total importation of billets under the present tariff is very slight, is it not?"

Mr. King: "Yes, sir."

Mr. Underwood: "So that the present tariff is practically prohibitive."

Mr. King: "Only at times."

Mr. Underwood: "Of course, but at most of the time it is practically prohibitive. When you compare 20,000 tons imported with 5,500,000 tons manufactured here, it is practically prohibitive, is it not?"

Mr. King: "It was in that year, of course, because the foreign makers had all they could do to attend to their home markets, just as we had here. They could get better prices there than by sending to this country."

Mr. Underwood: "As to whether, in theory, this was placed in a tariff for revenue or placed in the tariff for protection, I will ask you: The iron and steel interests of this country believe in a prohibitive tariff?"

Mr. King: "They believe in a protective tariff."

Mr. Underwood: "Well, I know, but do they believe that a protective tariff is a prohibitive tariff?"

Mr. King: "Not necessarily, I think."

Mr. Underwood: "The year we have been figuring on, 1907, was the year of the highest prices in iron, and the year that would most likely invite importation."

Mr. King: "Not when their home market was equally as high."

Mr. Underwood: "The price of iron has greatly dropped since that time."

Mr. King: "It has, yes."

Mr. Underwood: "And the price of iron being so much lower, it would not invite importation as readily as on a high priced market."

Mr. King: "No, it would not invite it."

Mr. Underwood: "In other words, the principle has always been followed in all trades that when the home market is high the price for the imported product is high, and the imports are larger than when there are hard times and the home market is dull. That is the universal rule, is it not?"

Mr. King: "To some extent, unless there are some other circumstances. The point that I am trying to make plain is that they have practically the same provisions that we have."

Mr. Underwood: "Do they believe it stands on the same basis of true protection at all if it is a prohibitive tariff?"

Mr. King: "Yes; I think they do."

Mr. Underwood: "Don't you think that, when the tariff question comes up that question of revenue to the Government should be considered as well as the industry?"

Mr. King: "I think that there is something more important than that to consider: the rate of wages we could give to our workmen here, labor being something like 90 per cent. of our costs. I think it is generally believed and recognized that labor is 90 per cent. of everything produced at a profit when the cost of material is taken out."

Mr. Underwood: "Is that so in the production of steel?"

Mr. King: "I think so."

Mr. Underwood: "Is not the cost of machinery a very much larger factor in the production of Bessemer steel than wages? When you bring the raw iron from the furnace to the bar in the Bessemer converter, is not the cost of labor a very small item in comparison to the cost of your investment, your capital and your interest on the investment?"

Mr. King: "Very small at that point, but I am taking labor at the mines, transportation and everything that labor is into, coal, coke and everything of that sort."

Mr. Underwood: "You recognize that when you plant a grain of cotton seed that from that time on down to the finished fabric it is all labor. Now, taking our basic material in each industry and considering the cost of the basic material in each country, and from the raw material or basic material the cost of labor added, what is the difference in the cost of labor between this country and that of English or Belgian producer, as well as the German producer?"

Mr. King: "I am very sorry, sir, that we have not that information, but we expect to give it to you later. But you probably appreciate that that is rather a difficult thing to get accurately, and we have not got it and have not had the time to get it since we had the call for this meeting. If you will permit me to say, we expect to get that information and give it to you in writing."

Mr. Dalzell: "You will file a brief hereafter?"

Mr. King: "Yes, sir."

Mr. Underwood: "The committee desires to have the brief, and all information it can get; but I wanted to make a comparison with you on these questions. I certainly wish to be correct."

Mr. King: "I will be glad to do what I can in that direction."

Mr. Underwood: "You say that you are entitled to this protection not from the question of revenue, but from the question of labor. Therefore, of course, the cost of labor here and abroad is a material question. Now, to figure it so that we can carry it easily, what is the cost of a ton of this bar steel, the run of the mill in 1907?"

Mr. King: "I would say, roughly, about a cent a pound."

Mr. Underwood: "That would be \$20 a ton?"

Mr. King: "A net ton of 2000 lb., and that would relate to 1907, when we were running full and under the most favorable conditions."

Mr. Underwood: "That is the cost price, or the selling price?"

Mr. King: "That is as near the cost as I can give."

Mr. Underwood: "Do you know of any of this bar iron being laid down in New York for sale at all, or at any other Eastern port in 1907?"

Mr. King: "I think so, but I could not give you instances. During the great demand for materials, there was some—I know—structural material, plates, coming into the country, and I believe there was some imported into Boston."

Mr. Underwood: "Do you know what the selling price in Boston was, with the duty added at that time, 1907?"

Mr. King: "Well, it would probably have been—the English and the German prices were higher then, of course—but I would say, it would be $1\frac{1}{4}$ cents over there now instead of 1 cent; \$5 a ton more."

Mr. Underwood: "You have given me the American cost of production as \$20 a ton, and I would like to get the foreign selling prices in Boston or New York, with duty added."

Mr. King: "Well, as near as I can get to it, I think it would have been \$30 a ton in 1907; I think about that."

Mr. Underwood: "Now, how much of that foreign selling price was freight, how much duty, how much profit and how much labor; or, in other words, how much labor was there in a ton of that foreign selling price, of that \$30 a ton?"

Mr. King: "I cannot give you that; I haven't the figures with me—the figures of foreign labor."

Mr. Underwood: "Well, how much was labor in the \$20 ton of home production, at cost; the labor at your factory; and how much in the raw material or basic material at your factory?"

Mr. King: "Well, I would like to give this to you subject to correction, because only from memory. I would say \$5 or \$6 a ton, with labor restricted as you have named it."

Mr. Underwood: "Now, if you added the labor on the raw material that come from the mines, how much additional would that add to it? Upon a ton of pig iron that would mean about a ton and a third of coke and about two tons of ore at the outside, about that. How much would that labor amount to?"

Mr. King: "I have a memorandum here of the labor cost on 1 ton of finished material, including the ore and coal labor, of \$8.25."

Mr. Underwood: "That gives the entire labor cost \$8.25?"

Mr. King: "I want to make my position plain, that this is going into the labor of the mining of the ore and coal, making the coke, putting through the blast furnace and the finishing mills; but I cannot go back of those."

Mr. Underwood: "That is all labor up to the point of production, and that includes every bit of it—\$8.25."

Mr. King: "Yes."

Mr. Underwood: "Have you any idea in this business as to what is the difference in the cost of labor abroad and at home? You state that you do not know the exact amount, but do you know the percentage of the difference?"

Mr. King: "Well, you can arrive at that, I think, by the selling prices, to some extent. I would say, generally speaking, that their labor on a ton of steel did not amount to more than 60 per cent. of ours."

Mr. Underwood: "That would make their labor about \$4.35 on a ton, or make a difference of \$3.90 in labor between the entire cost of European production and the American production?"

Mr. King: "Yes."

Mr. Underwood: "The duty on a ton of this is \$6. The difference between the cost of American labor and foreign labor is \$3.90; therefore it would be \$2.10 under the present scale of protective tariff over and above the labor price."

Mr. King: "That seems to be about right."

Mr. Underwood: "The present tariff is prohibitive, practically prohibitive, because there is only 20,000 tons imported, as compared with 5,500,000 or 6,000,000 tons manufactured. Now I want to ask you if under these circumstances you think the committee would be justified in increasing this duty?"

Mr. King: "I certainly think so. You could not get along on \$2 difference in labor. You certainly ought to give us some profit."

Mr. Underwood: "Of course you ought to have some profit, but you wanted the duty based upon the labor cost. You have only 40 per cent. of duty in excess of the labor cost, with a very small importation of this bar into this country, 20,000 tons, and which could not seriously affect a market producing 5,500,000 or 6,000,000 tons, could it?"

Mr. King: "There is a reason for that small—no, I do not think it could—but there is a reason for that small importation. One reason is that it is not very profitable to order abroad, for, in the first place, the buyer must put up his money first; he must take his chances of getting the class of material that he orders, or the sizes being right, and the quality; and if they come here wrong, there is no redress; he has got to take it, for he has paid his money. Then, of course, we must take into consideration the time it takes to get the material into this country, which is an important factor. That, I think, is the principal reason why a great deal more material has not been imported; the trouble in doing it, and the risks involved."

Mr. Underwood: "As a matter of fact, there are no importations coming in at all now, are there, of the English bars?"

Mr. King: "A few."

Mr. Underwood: "So, as a matter of fact, you practically had no competition from abroad, and you had largely an excess of protection already on your labor cost, and yet you say that the market is dull. I want to ask you if it is not due to the fact that there is overproduction in the United States in the home market and not competition?"

Mr. King: "Not in normal times. There is this year, certainly."

Mr. Underwood: "That is true in normal times, however. In 1907 you made a fair profit on steel bars, did you not?"

Mr. King: "Yes, sir."

Mr. Underwood: "And you could do it again in normal times?"

Mr. King: "I think so."

Mr. Underwood: "And you cannot do it now because there is overproduction in the home market?"

Mr. King: "Yes, sir."

Mr. Underwood: "Then, if you have any reason to give why you, under those conditions, have asked this committee to raise this tariff, I would be glad to hear from you."

Mr. Cockran: "One moment, please, before coming to that. Your firm of Jones & Laughlin is practically in the steel combination, the United States Steel Company, is it not?"

Mr. King: "Not at all, sir. We are entirely independent."

Mr. Cockran: "It is a competing company?"

Mr. King: "A competing company; yes, sir, entirely."

Mr. Cockran: "Now you stated a moment ago that some structural steel came in at Boston during the last year."

Mr. King: "Yes, sir; and more recently two cargoes at San Francisco, within a week."

Mr. Cockran: "I was about to ask with reference to that. There was a special demand for steel at San Francisco following the fire, was there not?"

Mr. King: "Not as much as you would suppose there was."

Mr. Cockran: "Of course, everything is exaggerated, but there was a large demand, was there not?"

Mr. King: "Yes, sir."

Mr. Cockran: "Did that demand operate to bring in much foreign steel?"

Mr. King: "Yes, quite a good deal."

Mr. Cockran: "How much was brought in?"

Mr. King: "I think possibly a third of what was used there—a quarter to a third."

Mr. Cockran: "How much was there in tons?"

Mr. King: "I could not, from memory, give you the exact figures, but I do happen to know that there are dealers out there who keep a stock of foreign steel, and it is coming in all the time."

Mr. Cockran: "Can you tell us whether these steel bars imported to meet the San Francisco demand were landed in San Francisco or were they landed in New York and transported by rail to San Francisco?"

Mr. King: "They were landed in San Francisco, and that is a point I am glad you mentioned, because we need a great deal more protection in San Francisco, on the Pacific Coast, than we do on the Eastern coast. There is a very low rate there; they get their product on vessels, and I am informed that they can ship from Antwerp to San Francisco at 35 cents per 100 lb., which would be, say \$7 a net ton. Our rate out there, from Pittsburgh or New York, via rail, would be \$15. Therefore, that is a favored place for the importation of steel, the Pacific Coast, on account of the great difference in freight rate."

Mr. Cockran: "Your idea is to balance that favor by a corresponding inflation of the tariff?"

Mr. King: "I think we ought to be protected there, just as well as in the Eastern part of the country."

Mr. Cockran: "Your idea is that where there is an inequality in railroad rates, the rates for transportation, that it should be balanced by tariff imposition?"

Mr. King: "I think so."

Mr. Cockran: "Now, did you say that you could furnish us with the gross amount that was received at San Francisco during that period?"

Mr. King: "I think we can get that; I will try to."

Mr. Cockran: "And you think it must have been a third of the total consumption?"

Mr. King: "A quarter to a third, I would say."

Mr. Cockran: "We will be glad to know the probable amount of importation; but is there any means of ascertaining what the consumption of domestic steel was in San Francisco immediately following the fire?"

Mr. King: "I have no statistics on that."

Mr. Cockran: "Well, when you say a quarter or a third, you are not basing that upon calculation, but it is purely a guess?"

Mr. King: "That is really all."

Mr. Pou: "Do you export any of your product?"

Mr. King: "No, sir, excepting that I may make an exception in some highly finished—one little special cold roll shafting. We export a little to England, but with that exception we do nothing in the export line at all."

Mr. Hill: "You stated that there was a total production in the United States of about 6,000,000 tons of iron and steel. What was the proportion of iron to steel?"

Mr. King: "I would think that the iron was 1,250,000 to 1,500,000 tons, and the steel was the balance."

Mr. Hill: "That would make 4,750,000 tons of steel, and 1,250,000 tons of iron?"

Mr. King: "Yes, sir."

Mr. Hill: "What was the statement that you made in regard to the reduction upon iron and increase upon steel?"

Mr. King: "I made the statement that the present paragraph covering steel bars, where there was put in semi-finished material, was wrong, and that they ought to be in a class with finished material, such as iron bars."

Mr. Hill: "Did you not propose to ask for an increase to equalize it with the iron? It would then be unequal, would it not? The iron would still be two-tenths of a cent higher than the steel, would it not?"

Mr. King: "But I think it is entitled to a greatly higher duty on account of the greater amount of labor required in making a ton of iron than of steel."

Mr. Hill: "The only point I want get at was this; that you leave steel at six-tenths of a cent a pound. It makes no reduction on the iron, but does make an increase of one-tenth of a cent upon steel. That really what you come here and ask for is a net increase of one-tenth of a cent upon steel bars."

Mr. King: "Yes, sir."

Mr. Hill: "And that would be about \$9,000,000 additional to the duty that is now charged on the entire product, which would be an increase of price of about \$9,000,000 upon \$130,000,000 of product. Is that what you ask for?"

Mr. King: "I do not believe that I have made myself plain. In the first place, we do not make iron bars, and do not want to speak for these people. The iron manufacturers will be heard later. I am only speaking for an increase on steel bars, because we make those, and we think that the present duty is too low."

Mr. Longworth: "I understood you to say at first that it was rather embarrassing to you to advocate increases."

Mr. King: "Yes; to advocate an advance on the first article that I mention."

Mr. Longworth: "But you propose to advocate others?"

Mr. King: "I do not propose to ask any advance on the balance."

Mr. Longworth: "That is all I wanted to know."

Mr. Clark: "You say you need more protection on the Pacific Coast than on the Atlantic Coast?"

Mr. King: "Yes, sir; on account of the freight rate."

Mr. Clark: "Do you know of any way of devising a scheme for one tariff on the Pacific Coast and another on the Atlantic Coast?"

Mr. King: "I do not. I think you will have to decide it."

Mr. Clark: "What you really want to do is to bring the Atlantic Coast up so that it will make you all right on the Pacific Coast. Isn't that what you want?"

Mr. King: "No, sir. There is more steel used in the Eastern part of the country than in the Western part."

Mr. Cockran: "You do not really care where it comes from, so long as you get the \$9,000,000, do you?"

Mr. King: "We do not say that we should get it, but we think our workmen should get it."

Mr. Cockran: "I understand. You are speaking now as a philanthropist on behalf of the workmen, and you do not care who contributes the \$9,000,000, so long as it is levied and collected?"

Mr. King: "I would rather the foreigners would contribute it than our home people."

Mr. Cockran: "I have no doubt that you have a philanthropic preference, but what you are after is the \$9,000,000 additional duty?"

Mr. King: "Yes, sir. We think we ought to keep that."

Mr. Cockran: "That is what you want this committee to give you?"

Mr. King: "Yes, sir. We are also large manufacturers of structural material and plates, of steel, and these carry a duty."

Mr. Underwood: "Please give us the paragraph."

Mr. King: "Paragraph 125—beams, girders, joists, &c. They carry a duty at present of five-tenths of 1 cent per pound, and I propose to ask the committee, on behalf of our company and the other companies in this same line of business, that the duty be retained as it is, believing as we do that it is no more than an intelligent and proper duty for the protection of the American manufacturers and the workmen."

Mr. Underwood: "Is that all you have to say on that particular schedule?"

Mr. King: "Yes, sir."

Mr. Underwood: "I would like to ask you what was the production in this country of beams, girders and joists in 1907."

Mr. King: "About 2,250,000 tons."

Mr. Underwood: "What did that production cost?"

Mr. King: "Well, they cost something more than bars on account of some extra work that has to be done on them in the way of straightening them, the extra cost of rolling and waste."

Mr. Underwood: "What would you assume that to be?"

Mr. King: "I would say \$23 or \$24 a net ton, under the most favorable conditions in 1907."

Mr. Underwood: "How much additional labor cost on this structural material over that of bars?"

Mr. King: "There is an extra labor in handling large and heavy bodies, straightening and shearing."

Mr. Underwood: "You gave the labor cost of the other at \$8.25. What do you give the cost of labor upon this?"

Mr. King: "That labor cost that I gave of \$8.25 was an average labor cost."

Mr. Underwood: "Now you say the production in this country is 2,250,000 tons."

Mr. King: "That is structural iron."

Mr. Underwood: "I notice that there are no importations given here in the statistics that I have."

Mr. Dalzell: "Yes, page 541, you will find that there was imported in 1906 98,588,475 pounds at a value of \$1,085,230 and in 1907 there was imported 34,359,371 pounds at a value of \$467,466."

Mr. Underwood: "Thirty-four million pounds were imported in 1907, which would amount to 17,000 tons, so there are imported 17,000 tons, against a production of 2,500,000 tons in this country?"

Mr. King: "The only reason why more was not imported was that they had more at home than they could do at better prices."

Mr. Underwood: "Then that schedule, as is the other schedule, is practically prohibitive, and it gives you over 90 per cent. of the business of the country. I notice that in the same year 1907 you exported \$6,954,000 worth, and a large portion of that, so their statistics state, went to Canada."

Mr. King: "Yes, sir. I think that is right."

Mr. Cockran: "The duty is levied upon that product?"

Mr. King: "Yes."

Mr. Cockran: "And that difference is higher than the duty levied upon a similar product coming from England?"

Mr. King: "Yes, sir."

Mr. Cockran: "It is 33 1-3 per cent. higher?"

Mr. King: "Yes, sir."

Mr. Cockran: "And yet with these disadvantages, you are able to maintain successful competition in Canada?"

Mr. King: "Not at all times."

Mr. Cockran: "Of course, there are exceptions, but you can, generally speaking?"

Mr. King: "Yes, sir."

Mr. Cockran: "If you maintain competition with a foreign producer in Canada under these advantageous conditions, why can you not maintain competition near at home where you have the advantage in transportation to the market and where there is no duty levied against you as there is in Canada?"

Mr. King: "The duty in Canada is about as high as ours in this country; that is the American duty."

Mr. Cockran: "I understand that, and that is precisely what gives the point to my questions. You are able to maintain competition in Canada under the disadvantages of a differential tariff, a tariff that discriminates against you, amounting to one-third of the total amount of tax that is levied here, and yet I ask you why you cannot maintain competition in this country where there is no discrimination against you and where you have the advantage of being relieved from the cost of transportation altogether?"

Mr. King: "Well, it is a fact that we do sell cheaper in Canada, and I think all over the world, as a rule, than we do at home, for the purpose of keeping our mills going. There are times when it is an advantage to keep our mills going and our workmen employed."

Mr. Cockran: "Did you not say a moment ago that you got exactly the same rates?"

Mr. King: "Not exactly, but practically."

Mr. Cockran: "Yes, the difference is between 'practical'

and 'exact,' would you just define that? What do you mean by 'practically the same' and 'exactly the same,' if the meaning is not identical?"

Mr. King: "I mean that they have in Canada what is called a dumping clause, to prevent material being sold in there, and we cannot sell in there. We cannot declare below 5 per cent. below the prices current in this country; in other words, they take our domestic price, and we cannot declare for a duty there at less than 5 per cent., or else the customer is subject to a large penalty for dumping. That 5 per cent., I think, would represent about the difference—I am trying to get at practically what I told you—that is, as to what I meant by 'practically'—that would represent the difference between the Canadian price and ours."

Mr. Cockran: "That 5 per cent. would not even equalize the discrimination in the tariff, would it?"

Mr. King: "To that extent that would."

Mr. Cockran: "It would only reduce it; it would not extinguish it. Now, to return to my question. In Canada you are able to meet competition successfully under conditions which impose upon you a discriminating tariff. In this country, where you have no such disadvantage of having to transport your goods across the sea, why can you not maintain competition equally well and even better?"

Mr. King: "Well, we cannot do it."

Mr. Cockran: "You mean to say that you do not want to do it, do you not?"

Mr. King: "We cannot, because the amount sold there is so small."

Mr. Cockran: "But that would increase it."

Mr. King: "I do not think it would."

Mr. Cockran: "Do you mean to tell us that it is cheaper to dispose of a larger amount than a smaller amount?"

Mr. King: "I mean if you sell a small volume at a lower price it does not affect you so much as if you had sold a larger volume at a small price."

Mr. Cockran: "You have stated that you sold practically all at the same price. The difference is simply 5 per cent., and that is your explanation. Surely it is not difficult to see that unless you can make a further explanation?"

Mr. King: "I cannot add anything different."

Mr. Cockran: "Then you can give us no reason beyond that, why production could not be maintained against foreign producers as successfully as it has been in Canada?"

Mr. King: "I would not want it to be put down just that way."

Mr. Cockran: "We do not want it to be put down unless it is the fact. Will you give us an additional explanation?"

Mr. King: "I come here after a long experience in the steel business, and I want to state that I believe in a protective duty for America, principally on account of the fact that it increases the wages of the workmen of America. I know that we cannot successfully compete with them on account of the handicap of high wages, large freight cost, &c. We cannot compete with the world in this home market unless we are protected."

Mr. Cockran: "Is there any other one on which you propose an increase?"

Mr. King: "I think not. I think they are all in line of reductions, or else retaining the present tariff."

Mr. Cockran: "Upon this particular schedule you wish to leave the rates as they are?"

Mr. King: "Yes, on beams, girders and plates."

Mr. Cockran: "What is called structural steel?"

Mr. King: "Yes; there are two schedules, paragraphs 125 and 126: one being for structural materials and the other for plates. I have grouped them together, and ask for the same duty on both."

Mr. Cockran: "Are there any others upon which you wish a reduction?"

Mr. King: "That is all I desire to talk about."

Mr. Cockran: "And upon the balance of the schedules you go into reductions?"

Mr. King: "Others are coming to represent them. I am only speaking for the material that we manufacture. There are a great many other lines that we do not go into. These gentlemen are here and ready to be heard."

Mr. Cockran: "I thought we were going to get the benefit of your views upon the reductions?"

Mr. King: "No; I do not think we ought to speak of that if we do not manufacture them."

Mr. Cockran: "That is, you do not want any reductions on anything that you produce?"

Mr. King: "No, sir; I ask for an advance of one-tenth cent on bars, and that the present schedule on plates and structural materials should remain as it is."

Mr. Cockran: "Oh, I see. When you were talking about your embarrassment at the beginning you were speaking of the order of presentation and not to the subject of presentation."

Mr. King: "I felt embarrassment that I should start off before this committee by asking an advance."

Mr. Cockran: "Now as to the condition of this industry. At present you can produce steel as cheap as anywhere in the world."

Mr. King: "No, sir; that is not a fact."

Mr. Cockran: "Where can they produce it cheaper than you?"

Mr. King: "I would say in England, Belgium and Germany."

Mr. Cockran: "What particular articles are there that can be produced cheaper, and what is the difference in the rates?"

Mr. King: "I speak more particularly of what we come in competition with—bars, plates and structural material."

Mr. Cockran: "Well, take the steel bars. You are selling them at what rate?"

Mr. King: "To-day, at the market price, between \$1.35 and \$1.40 per 100 lb."

Mr. Cockran: "How much per ton?"

Mr. King: "At \$1.40 per 100 lb. would be \$28 a net ton, and \$1.35 per 100 lb. would be \$17 a net ton; that is, \$27 and \$28."

Mr. Cockran: "What is the cost of the production there?"

Mr. King: "The way we are running now, I believe it is costing all we get for them."

Mr. Cockran: "Then it costs \$27 and \$28 a ton to produce?"

Mr. King: "That is what I believe to-day, and running under the conditions that we are."

Mr. Cockran: "At what rate did you sell this production of yours in Canada?"

Mr. King: "At practically the same price."

Mr. Cockran: "What did it cost you to produce?"

Mr. King: "Just as much as the domestic product."

Mr. Cockran: "How are you able to lay those down in Canada and sell them, and pay a duty when cost of production at home is \$28?"

Mr. King: "We do not pay the duty. The consumer over there pays it."

Mr. Cockran: "At what rate were these sold in Canada?"

Mr. King: "They were sold within something like \$1 a ton of the domestic price."

Mr. Cockran: "And the duty was much higher; the duty was how much in Canada?"

Mr. King: "I really do not know the rate of duty, excepting that we paid more duty than England. I know that England has a preferential duty."

Mr. Cockran: "What was the return to you for that proportion of your product that you sold in Canada?"

Mr. King: "Practically as much as we sold it for in this country."

Mr. Cockran: "Then, at that rate, it must have sold in Canada for \$33 or \$34 a ton?"

Mr. King: "Certainly; higher there on account of duty they have to pay."

Mr. Cockran: "Was English steel selling at that rate also?"

Mr. Underwood: "When you exported this structural material to Canada, you had to pay duty to the Canadian Government, did you not?"

Mr. King: "Yes, sir."

Mr. Underwood: "And you had to compete with the English product that came in at a less rate of duty than your product?"

Mr. King: "Yes, sir."

Mr. Underwood: "So that you were competing in a foreign market on this product at a higher rate of duty in the most prosperous year that you had for many years?"

Mr. King: "Yes, sir. As I said before, that is all a question of their ability to sell at a better price at home."

Mr. Underwood: "Under those circumstances, don't you think that you can compete with your foreign competitor on your home soil at the present rate of duty, when you can compete with him abroad at a higher rate of duty?"

Mr. King: "I would state that the reason that we didn't export largely was that the duty is not the same to Canada, but those are all economic questions that are determined by the condition of things in the two countries. It is true that England has a preferential tariff into Canada."

Mr. Underwood: "How much does that preferential tariff amount to?"

Mr. King: "One-third less than the tariff into Canada on American goods."

Mr. Underwood: "If that is the case, and you can compete there at a third less, do you not think you can afford to lessen this duty a third, and get some revenue for the Government, considering the fact that the Government is running under a deficit?"

Mr. King: "We cannot sell unless we sell in competition with them."

Mr. Cockran: "So that the English steel was selling in Canada at the rate of \$34 a ton to compete with you."

Mr. King: "We sell practically at the same price. Unless we meet the conditions over there we cannot sell."

Mr. Cockran: "And you can do that. If you can compete with them in Canada, though at a disadvantage, why cannot you compete with them here, where you have the advantage of transportation, even at the present rates of duty?"

Mr. King: "Well, they bring that a great distance, and

as I said before, there are some disadvantages in buying abroad on account of the fact of having to pay in advance and taking the risk on quality. They would rather pay us a little more money and have recourse on us if it is not right."

Mr. Cockran: "But surely you must see that in selling in Canada you have to pay the cost of transportation to Canada and you have to pay the duty?"

Mr. King: "Understand, we do not have to pay the duty; the buyers pay that. I would like to say to the committee that in my opinion it would never be possible in the United States to manufacture as cheaply as those foreign countries do for two reasons, one being the great distance and the great cost of transporting material to the mill from the largely scattered places that we have to bring it. For instance, we bring our ore 1100 miles. I do not believe that it would be ever possible for that reason, for the large freight cost in assembling those materials, against the English and the Belgians, who have the material right around them. They have the coal, the ore and the limestone within a stone's throw, and they are relieved of that heavy freight. I went to the trouble to bring here the cost of freight per ton in Pittsburgh on the materials necessary to make a ton of finished material."

Mr. Underwood: "Assembling the raw material?"

Mr. King: "Yes."

Mr. Underwood: "How much does it amount to?"

Mr. King: "It amounts to \$6.65."

Mr. Cockran: "In spite of all these disadvantages, you actually have sold it and do sell it in competition with England and Canada. If you are able to do it there, I ask you why you cannot do it here?"

Mr. King: "No, sir. I do not think we could consider putting that down a bit, after we are to have what I consider intelligent and proper protection for American manufacturers and labor."

Mr. Underwood: "Intelligent and proper protection? What do you mean by that? Do you think that a proper protection is one that gives you the absolute control of the home market, or one that gives you a fair chance to fight for the home market with your competitors?"

Mr. King: "I should say a little more than a fair chance for the home market."

Mr. Cockran: "A little more than a fair chance is foul, is it not?"

Mr. King: "Not altogether, I think. There is a distinction there. I believe we ought to keep the American market to ourselves."

Mr. Underwood: "In other words, what you believe in is a prohibitive tariff practically?"

Mr. King: "I think that probably is right."

Mr. Underwood: "I would like to ask you if you, as a business man, want us to amend the constitution and raise our revenue from an income tax, or from an inheritance tax, or do you believe in raising revenue from tariff taxes?"

Mr. King: "I believe that you ought to raise it on luxuries; put more on."

Mr. Underwood: "You believe that we should put a prohibitive duty on iron and steel and things of that kind and raise the revenue on coffee and tea?"

Mr. King: "They are not luxuries, they are necessities."

Mr. Underwood: "What are luxuries?"

Mr. King: "I would say silks, jewelry, diamonds, wines, tobaccos, anything in the line of luxuries that a man could get along without, that he does not need."

Mr. Underwood: "As a matter of fact, of course, on these items that you have named, we are receiving practically all of the duty that we can. We cannot raise the price on tobacco, but on silks we might raise more duty by reducing it some, but the silk men say that they ought to have a prohibitive tariff there too. But as a matter of fact, it looks like we had to either lower some of these duties to raise enough revenue to support the Government, or else take in some new items like coffee and tea that have never been taxed before. Now, as a business proposition, and you come before this committee to advise us, and we are glad to have your advice, I would like to know whether or not the people in the iron and steel business are not willing, under the circumstances, when the Government is needing money, to make a responsible reduction, as long as they have a fair chance to control the market."

Mr. King: "I say that we are able, under an intelligent and protective tariff to pay our men such wages as I would like to pay them. I do not believe that they would object to a tax on coffee and tea and sugar and what not, that they could afford it."

Mr. Boutell: "You say 'intelligent and protective tariff.' Those terms are synonymous, are they not?"

Mr. King: "With me?"

Mr. Cockran: "You have several other schedules to discuss, have you not?"

Mr. King: "Yes, sir; quite a number."

The Chairman: "I have before me Mr. Carnegie's article in the *Century*, and I am going to read about a column or so of it on this question, for the benefit of committee and

the gentleman present, and after that I will ask you some questions in reference to it." The chairman then read an extract from the article, and said:

"I will have the whole article inserted in the record in connection with the correspondence between the chairman of this committee and Mr. Carnegie in which he was asked to appear here. I wish to ask you some questions in regard to this. He says that he was assured by one who has recently examined the matter that the cost per ton for labor was greater than with us, unusually high as our wages are at present. Have you any information or statistics that will aid this committee in an examination of the question, so as to enable us to come to a correct conclusion. I understand that you deny this statement. What we want is evidence upon the subject in order to satisfy the minds of the members of the committee as to whether or not what Mr. Carnegie states is true. Have you any such statistics?"

Mr. King: "I have."

The Chairman: "Will you prepare them and give them to the committee?"

Mr. King: "I can do so. I do not know what the other gentlemen have."

The Chairman: "The object of this committee is to get the facts in these matters so as to enable it to come to a just conclusion. That is all the people expect of us in reporting this bill. We have endeavored to get people before this committee, people of every kind who could give us facts and figures and information in regard to the changing of rates, in order that we may come to a just conclusion, but unfortunately up to this time most of the steel men have not been able to come. Only one man in the steel industry, I believe, has indicated his determination to come. The other gentlemen do not seem to have the time nor the disposition to come before the committee. What we want are the facts, and we would like to have you give the important facts on this subject."

Mr. King: "In regard to that I want to say, as I stated in the beginning of my testimony, that we have not been able to get all the facts on account of the short time which was allowed. We propose to secure and give that information at as early a moment as possible."

STATEMENT OF FRANK WITHERBEE OF WITHERBEE, SHERMAN & CO., PORT HENRY, N. Y.

"I am here to represent the Lake Champlain ore producers of this country. It is fair for me to say to you that I only returned from Europe on Saturday, and I have had no opportunity of talking this matter over with my associates in business, nor have I had any time to group together some facts and figures which may be of interest to you all. But if it meets with your wishes I will be very glad to give you some figures, showing the cost data of ore produced in the Eastern part of this country, and so far as it lies in my power to give you the corresponding cost in Europe. I visited a great many of the iron ore centers of Europe and became acquainted with the cost of their labor, &c., and anything I have in my knowledge you are quite welcome to. I feel certainly that there is a widespread demand for tariff revision, and there is reason for it. Undoubtedly there are a great many articles which can properly be reduced; there are other articles that cannot be reduced, and I think there are a few articles that perhaps ought to be increased."

"Confining myself to the iron ore industry, with which I am more familiar, I would say that in any revision you might make of the present schedule I think due consideration should be given to these facts. In the first place, the labor that the iron ore manufacturer has to compete with is almost the cheapest in the world, that of Spain and Lapland and Cuba, where the ordinary manufacturer of iron and steel has to compete with the labor of France and Germany and Great Britain, which is much better paid. There is also another fact, that while a great many branches of the iron trade have but little competition in the way of imports, iron ore has always had a very great competition. There have at all times been large amounts of iron ore brought into this country from Europe, and that should be given some, I think, consideration also. At times it does not affect the domestic iron ore producers as much as it has, for instance, during this past season, when, for a period of quite a number of months so far as my own company goes, we were simply not able to make any sales whatever of certain grades of ore as against foreign ores that were being landed in this country. Another thing is, you should lend encouragement to the mines in the eastern part of our country. There are several large mining districts that are about to be developed, and to develop an iron mine of any size costs from \$500,000 to \$2,000,000 or \$3,000,000. The investment at best is an uncertain one. One may open up on a vein that seems large for a year or two years, but the quality is likely to vary, and the amount one has before one is always uncertain, and therefore you cannot, as in other investments, look upon a small return in interest as fair. You have got to have a return on your capital which will correspond to the amount of the principal that you are absorbing and disposing of from time to time, and also then give due regard to the uncertainties of the trade. I

do not know that there is anything else that I am prepared to say to you to-day. I am sorry that I have not had more time to study this matter, but if hereafter there is anything else I can give you in the way of information, I will be glad to do it. Or if to-day there are any questions you wish to ask me, I will do my best to answer them. I am afraid it must be in a very general way, however. I could not carry in my mind all the details of the cost."

Mr. Clark: "Do you want the tariff increased or held as it is, or cut down?"

Mr. Witherbee: "I think if there is going to be a general revision of the tariff, iron ore should stand its share of reduction. There are times like this summer when the competition would probably stop the production of many grades of domestic ore. In other years they could stand competition."

Mr. Clark: "This year is not a fair illustration?"

Mr. Witherbee: "No; I think, perhaps, three years in 10."

Mr. Clark: "As a matter of fact, in the Minnesota iron beds iron can be mined cheaper than anywhere else on the globe, can it not?"

Mr. Witherbee: "No, sir; I doubt that. I think the magneto ore of Germany is much more cheaply mined."

Mr. Clark: "Why they scoop this up with a shovel, do they not?"

Mr. Witherbee: "Yes, but it lies in beds, whereas in this magneto district in Germany and France it covers areas miles in extent."

Mr. Clark: "You do not know any device by which it is cheaper to handle that sort of material than a cheap shovel, do you?"

Mr. Witherbee: "No, sir. But that is true abroad also as it is in Minnesota. I am not very familiar with the Lake Superior conditions. I am just giving you my personal opinion. I do not think the Mesaba ore region is as cheap a producer as it was 10 years ago, and the production must increase in cost very materially. After they get to a certain depth they have a soft body of ore which cannot be held up by pillars of rock, but must be held up by timbers, and their cost will increase. If you will investigate, I think you will find that the costs of the Mesaba region are higher than they were eight or ten years ago."

Mr. Clark: "Everybody knows that it costs more to get ore out of the ground than it does to scoop it off of the top."

Mr. Witherbee: "They cannot do that in many mines."

Mr. Clark: "They have the cheapest transportation rates on earth, too, have they not?"

Mr. Witherbee: "No, sir. They do not compare with the rates on the foreign ores to a point."

Mr. Clark: "I say that the steel trust, which owns the Mesaba range, has the lowest freight rates to the centers of manufactures of any mines in the United States, have they not?"

Mr. Witherbee: "No, sir; I do not agree with you. In the first place there is Alabama."

Mr. Clark: "Where is there one cheaper?"

Mr. Witherbee: "Alabama is cheaper by very much more because the average rate from the Lake Superior region to points of consumption is, I think, somewhere from \$2 to \$2.50. The average rate of transportation of iron ore from the Alabama and Tennessee fields to the points of consumption will vary anywhere from 25 to 60 cents. Now, I will go a step further and I will say that in the East we can get to points of consumption cheaper than in the West."

Mr. Clark: "Do you say they can ship ore from the Alabama points to St. Louis, Pittsburgh, Chicago and Minneapolis and New York cheaper than they can ship it from the Mesaba range to Pittsburgh?"

Mr. Witherbee: "No, sir; but I understood your question to be to iron centers. I consider Birmingham and Chattanooga iron centers."

Mr. Clark: "How much of a cut do you think you could stand on iron ore and still live and flourish?"

Mr. Witherbee: "In the long run, a reduction of possibly 15 or 20 per cent."

Mr. Dalzell: "A reduction of 15 or 20 per cent.?"

Mr. Witherbee: "I am only speaking for my own interests."

The Chairman: "You are standing a reduction of 20 per cent. on Cuban ores?"

Mr. Witherbee: "I was not thinking of that."

The Chairman: "And the importations have not increased from Cuba under that cut?"

Mr. Witherbee: "Yes."

The Chairman: "They have been a little over 1,000,000 tons a year. They were a little over 1,000,000 tons in 1903 and 1904, and about 1,000,000 tons a year since, half of which comes from Cuba."

Mr. Witherbee: "Cuba is going to import very much more than in the past. There are fields there that are being developed now that are going to ship into this country at a much lower rate than it has ever been delivered for from Cuba."

STATEMENT OF WILLIAM MATHER OF PICKANDS, MATHER & CO., CLEVELAND, OHIO.

"I represent the Lake Superior iron ore industry—that is, I am interested in Lake Superior iron ore—and I have come down to appear before the committee in reference to that industry. What Mr. Witherbee has said practically echoes my own sentiments in reference to the general situation with regard to iron ore. We do not ask for any increase in duty, but I think Mr. Witherbee is fair. I think, perhaps, the Lake Superior iron ore men outside of myself would be willing to subscribe to his opinion, that the iron ore industry could stand a reduction of 20 per cent. on the present rate of duty, which would make it 8 cents less, or 32 cents a ton. The Lake Superior iron ore industry has developed to very large proportions, as of course you all know. Something like 42,000,000 tons was shipped from there last year, and in the development of that industry, which has come up under the laws, the revenue laws which prevail, of course, the conditions have grown consistently with that. The costs of labor are high. The conditions of the laboring population are correspondingly good. We have had practically very few labor troubles or strikes in connection with the industry for a great many years, and I should say in a general way it is difficult to say what would happen under certain conditions of reduction of tariff, but I should say that such a reduction as Mr. Witherbee stated would not affect, materially, at any rate, the conditions of the mining industry up there. Now, if you should attempt to reduce it further, or take it off entirely, naturally the tendency would be to disarrange those conditions under which the mining industry has grown, and make the operators try to bring about lower costs. Therefore, I should say that it would be unwise for the industry, as a whole, to make any further reduction in the tariff on iron ore than that which has been suggested by Mr. Witherbee. I have no brief, Mr. Chairman, I am coming down here somewhat unexpectedly for several reasons. I shall be quite ready and willing to make a brief before your committee at the time that you should suggest. I shall be glad to answer questions to the best of my ability, which may come to you."

Mr. Hill: "Do you know about what proportion of the iron ore supplies in the United States are under one control?"

Mr. Mather: "No, sir; I do not."

Mr. Hill: "That is in the control of United States Steel Company?"

Mr. Mather: "I do not think anybody could answer that question intelligently, because we do not know just how much iron ore there is in the country. It is rather difficult to answer. I should say 40 or 50 per cent."

Mr. Hill: "Under one control?"

Mr. Mather: "Yes."

Mr. Hill: "The result of that situation is that it is bound to result in a constantly increasing cost of iron in this country, is it not? One-half of the entire production is under one control, and that half is subject to a continually annually increasing charge. It is bound to result in a constantly increasing cost of iron—practically the same situation that the lumber industry is in to-day, with a constantly increasing cost of the product."

Mr. Mather: "From the mines that are now being operated, the cost is gradually increasing. In the case of the present known supply, the cost is increasing on account of the greater depth of the ore."

Mr. Hill: "And it looks to a constantly increasing cost of iron and steel, does it not?"

Mr. Mather: "If we find new deposits, it would keep the price down."

Mr. Hill: "I am speaking about the known supply."

Mr. Mather: "There would be a slight gradual increase in the cost on account of, perhaps, greater depth of the mines."

Mr. Hill: "Do you not think that it is somewhat the duty of the United States to conserve that product, and look out for the future as well as for the immediate present?"

Mr. Mather: "I should think it would be wise for the United States to increase its output and production of iron ore and encourage the development of iron ore bodies."

Mr. Hill: "Do you not think it would not be more for the interest of the United States to conserve its own product and draw ore at cheaper prices from other countries?"

Mr. Mather: "If we knew just how much we have, yes; but we have no idea how much we have. I think we have infinitely more than we can now see, and I think it is bound to increase."

Mr. Needham: "There is no danger of immediate exhaustion of the supply?"

Mr. Mather: "No, sir; I do not think so."

Mr. Clark: "Is it not true that the trust, and perhaps other large manufacturers of iron, are buying up low grade ore fields now that they do not expect to work for 25, 30, 40 or 50 years, just to have it in stock?"

Mr. Mather: "That I do not know."

Mr. Clark: "And so that nobody else can get it in the meantime?"

Mr. Mather: "I do not know whether they are or not. That would not be, however, an unnatural investment for persons to make who are operating in iron ore."

Mr. Clark: "I know; but it would be a very unpleasant thing for the mills that have to use iron ore."

The Chairman: "Mr. Mather, have you noticed any more competition in the sale of your ores for the last five years on account of the foreign import? Have you had to reduce the price at all on account of foreign importation for the last five years, up to, of course, October 1 a year ago?"

Mr. Mather: "It has not been what I should call an appreciable factor. It has had an influence, but I should not say it was a marked influence."

STATEMENT OF JOSEPH G. BUTLER, JR., OF YOUNGSTOWN, OHIO.

"I represent a large percentage of the merchant blast furnaces of the United States. The product of these furnaces is used in the malleable works, foundries, cast iron pipe works, and the independent steel works, in the form of basic iron. I get my authority for this representation, first, by letters that I have from perhaps 30 or more of the independent furnaces, and, second, as the result of a meeting which was held in Cleveland on last Wednesday, which was largely attended, and at that meeting a committee was appointed to meet with the Eastern producers in New York on Monday. We met with them on Monday, and again on Tuesday, and the matter was then placed in my hands. I may say that I think perhaps there are one or two others that may want to be heard on this question. I want to say that this matter was placed practically in my hands yesterday, and I am not prepared to give you the information that it seems to me you should have. I judge from the questions that have been asked here this morning that what you want is information and not opinions. I intend to go home and prepare and file as quickly as I can get it ready a brief showing the cost of making iron in the different localities, showing the labor, and showing the transportation rates, and I intend, further, to get some information from abroad with reference to the same matter. I have already sent off two long cable messages, and when I get through I intend to do it conscientiously and fairly, and I will file my brief with the committee. At the third meeting, which was held in New York yesterday, there was official action taken which I will read, and I want to file this as a preliminary paper: At a meeting of the pig iron producers, held in New York, on November 24, the following resolution was unanimously adopted:

We recommend that ferromanganese be placed on the free list, but that no change be made in the balance of the pig iron schedule, believing that any reduction will be to the detriment of the manufacturing interests, the transportation companies, and the labor employed in the production of pig iron, coke and iron ore.

"I am going to file a brief and, as I have said, I am going to make it complete, and I am going to try to give you the information that it seems to me you ought to have in order to formulate this bill."

Mr. Cockran: "We shall be very glad to have you. Let me ask you this question? Suppose there was a reduction in the duty on iron ore to, say, 25 cents. Would that have any influence upon the rate that should be exacted for pig iron?"

Mr. Butler: "Very likely it might, but I think that if there was very much of a reduction made on iron ore it would increase the demand for it in the East, and it would perhaps raise the price of the iron ore."

Mr. Cockran: "That would be a pretty good protection in itself, would it not?"

Mr. Butler: "That would help some."

Mr. Griggs: "Then you would be willing to see a reduction in the duty on pig iron?"

Mr. Butler: "I think not."

STATEMENT OF J. B. WILKINSON:

J. B. Wilkinson, attorney for certain New York steel importers, presented the following statement:

"I appear before your honorable committee on behalf of George Nash Company, J. Wilkes Company and Herman Boker & Co., all of them New York importers of steel. My clients are practical business men. They do not ask to have steel put on the free list, and they are not clamoring for much lower duties, but they do ask that what business they have left be not killed by higher duties, levied either directly or indirectly.

"Most of the paragraphs of the metal schedule are not prohibitive. Out of the \$332,000,000 of tariff revenue for the year 1907 only \$12,000,000, or 3.7 per cent., came from iron, steel and manufactures thereof. The importation of bars, railroad iron or steel, was only \$133,936, against \$8,600,000 exported; hoop, band or scroll iron, \$129,100 as against \$267,939; sheets, plates and taggers, iron or steel, \$315,000, as against \$6,630,000; wire, \$1,000,000 imported, \$8,000,000 exported; structural shapes, \$328,000 imported, \$6,900,000 exported. In 1905 the domestic production of structural shapes was over \$90,000,000. In 1906 the pig iron produced amounted to \$505,000,000, and that imported to \$7,000,000. All of these figures are taken from the last

United States Statistical Abstract. Comparisons made to-day would be even more striking. It does not seem unreasonable, therefore, to ask for importers the preservation of some remnants of the metal schedule, and to call attention to the efforts that may be made to make the schedule absolutely prohibitive.

"I shall take as the basis for my remarks what is said to be your committee's draft of a revised text of the metal schedule, the rates being left blank. This text was published in *The Iron Age* of November 19, pages 1444 and 1445. I shall confine myself strictly to the paragraphs in regard to which I am commissioned to appear.

"Paragraph 135.—The most important of these is paragraph 135, one of the few paragraphs not prohibitive. The material covered by this paragraph is iron and steel to be manufactured in this country into products ready for consumption. The rate of duty ranges, except on the cheaper grades, from about 25 to 30 per cent. An effort by the Treasury Department was made on certain forms of this steel to levy a duty of 45 per cent., but after a contest of 10 years in the courts, it was decisively held that the steel should come under the specific rates of the paragraph. Various provisions of the paragraph have been fought through the courts, and the phraseology has, therefore, a well settled meaning. Rather than to have further controversies, the importers are prepared to accept this paragraph as it now stands, except on grades valued at less than 4 cents, which should be assessed on a plane with grades valued at more than 4 cents.

"Paragraph 141.—It was the purpose of this paragraph to levy an additional duty upon all strips, plates or sheets that had received a further process, to give a temper or a blued, brightened or polished surface finish. Such further process of manufacture requires additional labor, and importers admit the justice of a corresponding additional duty.

"But the new text would exact the additional duty on cold rolled material. Much of the steel covered by paragraph 135 is cold rolled, and the more it is rolled the higher its value and the greater the duty under said paragraph. The thinner the gauge required, the oftener the metal has to pass through the rolls. Going through the rolls gives it a certain brightness, but this brightness is simply incidental, adds no value and is not a surface finish, because it is entirely destroyed in the further course of manufacture. In being tempered or otherwise treated in the factories of this country, it becomes blackened and is subsequently brightened if a surface finish is required. There would be no justice in exacting this additional duty, which would range as high as 40 per cent. on an incidental and valueless brightness which is destroyed as soon as the steel reaches this country. The words 'cold rolled, cold drawn,' should be omitted from the paragraph.

"It is proposed in this text of a tentative draft to make a new paragraph for 'steel strips, strip steel or steel in strips twenty-five one thousandths inch thick or thinner,' and a comparison is made with the rate for flat steel wire. These strips are now dutiable under paragraph 135, and the thinner they are the more duty they pay. They are not drawn as wire is, but are rolled, and making them dutiable as wire would stop their importation. I am informed that no corset steel is imported since its inclusion in the wire paragraph.

"Regarding paragraph 132, I am informed that no iron or steel sheets or wire plated with copper or nickel are produced in this country, and that none is likely to be, as the quantity required is too small. The present 45 per cent. duty is prohibitive and forces the use of substitutes, just as high duty on Chinese matting forces the use of domestic rugs. A duty of 20 per cent. is all that the article would stand.

"Paragraph 185.—The following is suggested: Nickel, nickel oxide, alloy of any kind in which nickel is component material of chief value, in pigs, ingots, bars, rods, plates, sheets, and strips, 6 cents per pound, and all other forms 40 per centum ad valorem. There is practically no crude nickel imported. The world seems divided between a European combination and a combination composed of Americans and Canadians. The Europeans will not sell here and the Americans do not sell in Europe.

"The irrepressible conflict that has been so long waged between domestic manufacturer and importer is rapidly drawing to a close. The importer has got the worst of it. But the Government will probably need revenue from duties for some time to come, and our gigantic iron and steel industries are likely to be slightly affected by the trifling competition they have to meet under the paragraphs which I have enumerated."

The Zinc Duties.

Representatives of the zinc ore producers of Kansas and Missouri were heard by the committee on the proposition that the new tariff laws should provide specifically for a duty on these ores. The principal argument was presented by F. W. Mitchell, of Joplin, Mo., and was, in part, as follows:

The zinc ore producers of the United States ask for a duty of 1½ cents per pound on the metallic contents of all

zinc ores, and in doing so, feel that they need and should have this duty to protect them against foreign importations. Mexican ore can be laid down at the Kansas smelters at \$11.82 per ton, actual cost for 40 per cent. ore. This would make the cost of 60 per cent. ore, which is the standard grade for the Joplin District, \$17.73 per ton. A duty of 1½ cents per pound, as proposed on 60 per cent. ore, would be \$18 per ton, or a total of \$35.73 per ton for Mexican ore at Kansas smelters, while the ore in the Joplin District, under normal conditions, costs \$37.78 per ton, which includes royalty and amortization charges. The Mexicans have practically comparatively no capital invested in equipment and development at most of the mines. It is simply a quarrying proposition and hauling the ore to the railroads, and loading on cars for shipment, while in the Missouri-Kansas District the average investment is about \$37,000 per plant. Labor cost in Mexico is about \$2 per ton. Labor cost in the Missouri-Kansas District is \$17.02 per ton, or a difference of \$15.02 per ton in favor of the Mexican ore. Total average cost, including supplies and loading on cars at Mexico, is \$4.91 per ton; in Missouri-Kansas District the average cost, including supplies, is \$28.62 per ton, or a difference in favor of Mexican ore of about \$23.71 per ton. On the other hand, the freight on Mexican ore is \$6.91 per ton, while loading and freight on Joplin ore are about \$1.20 per ton. The difference in favor of the Joplin ore is \$5.71, which makes \$18 per ton in favor of the Mexican ore. But since it takes 1½ tons of Mexican ore to equal one ton of Joplin ore, there should be deducted from the \$18, one-half of the total cost of laying Mexican ore down at the smelter which is \$5.91, leaving \$12.09 in favor of the Mexican ore, to which should be added royalty and amortization cost of \$9.16 per ton, or a total of \$21.25, difference in the cost of the production of a ton of Missouri-Kansas and Mexican ore. Against this difference we ask for at least a tariff duty of 1½ cents per pound on metallic contents, which would be \$18 per ton on 60 per cent. ore. In accordance with these views we ask that calamine, paragraph 514 of the Dingley act, be stricken from the free list and paragraph 181 of said act be changed to read as follows:

Lead bearing ore of all kinds, 1½ cents per pound on the lead contained therein. Zinc bearing ore of all kinds, 1½ cents per pound on the zinc contained therein. Provided, that all ores imported which contain both lead and zinc shall pay 1½ cents per pound on the lead contained therein, and also 1½ cents per pound on the zinc contained therein, and provided further that on all importations of lead bearing ores and of zinc bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores, by common carriers, bonded for the transportation of appraised or unappraised merchandise, to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishments, they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer, designated by the Secretary of the Treasury, who shall make a proper assay of the sample, and report the results to the proper customs officers, and the import entries shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law, and the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

Including the mines of Kansas, Oklahoma and Arkansas, it is safe to say that there are in the entire Missouri-Kansas mining district over 600 mines equipped with power concentrating plants. These mines are not controlled or operated by a pool, trust or combination. Probably over 90 per cent. of them are owned by individual operators and distinct corporations. Within 30 years this district has grown and developed through individual pluck and energy. It has always been essentially a poor man's country. There is no labor union among the miners of this district nor is foreign labor employed. The miners and laborers of the entire district are strictly American, and live according to American ideals. Many of them own their own homes. A church is in every mining camp. The children attend the public school. Electric railroad and telephone service reach all the camps and connect them with distant points. Daily mail service is supplied. In fine, the average miner knows something about politics and the world wide events of the day. Many former miners, who found good prospects by the sweat of their brows, have sold them at a good profit and have attained positions of responsibility and affluence in the district. And to their credit, be it said, they remain with us, and support the district with their money and their influence.

With the immense growth of this district within the last 30 years have come metropolitan cities, aggregating over 100,000 inhabitants, containing light, heat and power plants; have streets, sewerage and water systems; in fine, all the modern conveniences, which make life worth living. Joplin contains one of the finely equipped hotels of the country, and Jasper County, with more than 100,000 people in 1907 shipped \$20,250,000 of surplus product, more than half of which came from mines and quarries.

Mr. Mitchell was sharply cross-examined by Representative Clark of Missouri, Democrat, who insisted that the zinc producers were able to make money under existing conditions, and that, if the demand for a duty on zinc ore were

in any way based on the fact that lead ore is dutiable, the best solution would be to repeal the lead duty rather than to impose a duty on zinc.

Alex. O. Ihlsing, of Oronoco, Mo., followed, in an argument along a line similar to that pursued by Mr. Mitchell.

Ferro-Alloys.

The Primos Chemical Company, Primos, Pa., presented the following statement:

This statement is made on behalf of the industry manufacturing ferrotungsten, tungsten metal, tungstic acid, tungstate of soda, tungstate of ammonia, ferromolybdenum, molybdenum metal, molybdic acid, molybdate of ammonia, ferrovanadium and similar metals and alloys; the industry of mining tungsten ore, molybdenum ore and vanadium ore, and the industry of manufacturing high-grade steel and steel alloys by the use of these metals.

That it is essential to the growth and very existence of these industries in the United States that they be protected by fair and reasonable tariff legislation against the ruinous competition of the cheaper products and cheaper labor of foreign lands, and that with such just protection they can thrive and develop without hardship or injustice to the consumers of such products, the facts will show.

In the act of 1897 and former tariff acts, tungsten, molybdenum and vanadium have not been provided for by name, but have been placed in paragraph 183 of schedule C. "metallic mineral substances in a crude state and metals unwrought, not specially provided for in this act, 20 per cent. ad valorem." On several occasions in the past importers of these valuable products have tried to have them classed "by similitude" with ferromanganese under paragraph 122, which provides that "iron in pigs, iron kentledge, spiegeleisen, ferromanganese, ferrosilicon, wrought and cast scrap iron, and scrap steel, \$4 per ton; but nothing shall be deemed scrap iron or scrap steel except waste or refuse iron or steel fit only to be remanufactured." During such periods the American manufacturers have been compelled practically to shut down their works, as they could not continue to exist under such conditions. Even the 20 per cent. ad valorem duty on "metals unwrought" does not allow a fair or just margin of profit.

It is manifest that the classification—even the possibility or fear of classification—of products such as these under such vastly different rates of tariff can only serve to unsettle and ruin the industries of mining and manufacturing them. These industries not only need a reasonable protection against cheap foreign competition, but they have a right to expect certainty and stability in the classification of their products for duty. This can be best accomplished by naming them in the act and clearly defining what duty they shall pay.

The ferromanganese and ferrosilicon, upon which a duty of \$4 is placed by paragraph 122, have nothing in common with the valuable metals referred to. Ferromanganese and ferrosilicon are cheap products made in large quantities like pig iron (named in the same sentence), ferromanganese being made direct from the ore in the blast furnaces the same as pig iron and from an ore that is abundant, found in masses and cheaply mined at a cost of from \$6 to \$8 per ton. Ferrosilicon is made from waste iron and sand, and the cost of the raw materials is small. The market price of ferromanganese is from \$42 to \$60 per ton and of ferrosilicon \$70 to \$100 per ton. The market price of tungsten, however, is from \$1200 to \$2000 per ton, depending on the prices of ore.

The manufacture of tungsten and molybdenum metals and of ferrotungsten, ferromolybdenum and ferrovanadium entails a great deal of care and requires a combined chemical-metallurgical plant, as the finished products must be in such shape that they can be used by the steel works in the finest grades of steel, and the cost of the chemicals used and the large amount of manual as well as trained scientific labor involved makes the cost of manufacture high, as the ore as received from the mines requires very complicated treatment before it can be reduced to a metal or alloy.

Tungsten, molybdenum and vanadium are principally used in high grade and high class steels, as for instance, high speed tool steels, magnet steels, &c. The business of manufacturing such steels was in its infancy at the time of the last tariff legislation, and the industry has therefore not received sufficient protection against foreign competition and the manufacturers of high grade steels are at a great disadvantage against European competition. The present tariff has provided only for steel worth 16 cents per pound, on which the duty is 4.7 cents per pound, and there the schedule stops; whereas the special steels in which the above named metals and alloys are used cost from 16 cents to \$1 per pound and have no further protection than the 4.7 cents per pound. About 6000 tons of these expensive steels are made in the United States while about 12,000 tons are imported, principally from England, showing plainly the lack of protection. If these steels were made entirely in this country, as they should be, the manufacture of tungsten, molybdenum, &c., would treble in the United States, as would also the manufacture of ferrosteels.

About \$6,000,000 is invested in the United States in the manufacture of tungsten, molybdenum, vanadium and the metals and alloys mentioned herein, and about \$5,000,000 in tungsten mining property in the United States. The cost of production of tungsten ore in this country amounts to \$8 minimum per unit of tungstic acid per ton of ore (2000 lb.). Ore sold on a basis of 60 per cent. at \$8 per unit would cost \$480 per ton.

Ore mining has not been profitable on account of foreign ore usually coming in at a lower price, and whenever business is poor in Europe the foreign ore is shipped to this country at a price much below the cost of production, and on this account the American mines are forced to shut down at such periods. The ore conditions are similar all over the world and the cost of production depends entirely upon the cost of labor at the mines—i. e., wages.

About $2\frac{1}{2}$ tons of tungsten ore are required to make 1 ton of tungsten metal, or 1 ton of tungsten contained in the ferro.

There are six manufacturers of ferrotungsten, tungsten metal, ferrovanadium, molybdenum metal, &c., in the United States. In Great Britain there are three. In France there are two which make ferrotungsten, ferromolybdenum, ferrochrome, ferrovanadium and ferrotitanium. The two French companies have works located in Southern France, Savoie, where they have the additional advantage of cheap water power. They also have additional works in Switzerland and in Norway.

In Germany there are 15 establishments, for Germany is the principal seat for the manufacture of tungsten and molybdenum metals and their products. Two works are located at Berlin, and one of these has a tungsten and molybdenum manufactory near the Saxon border in the southern part of the province of Brandenburg. Saxony has four manufacturers, one at Altharzberg, one at Rosswein, one near Dresden, one at Zwickau. There are two manufacturers near Hanover and one at Annaburg in Thuringia. There is one manufacturer at Barmen, one at Siegen, two at Hamburg, one near Cologne and one near Brunswick.

The chief advantages which the manufacturers in Europe have over the manufacturers in the United States are, 1, cheaper chemicals used in the reduction of ores; 2, low cost of labor, and, 3, cheaper ores. The principal chemical used is muriatic acid, the cost of which is 25 cents per 100 lb. in Europe, against \$1.35 per 100 lb. in the United States. About 5 lb. of this are used to every pound of tungsten metal produced, showing at a glance the advantage in this one chemical alone. Nitric acid is also one of the acids used, and is proportionately much cheaper in Europe than in this country. Ammonia is used largely in the manufacture of molybdenum products and also for some tungsten products, and this is considerably cheaper in Europe.

The wages paid to labor employed in the manufacture of alloys at the various points in Germany vary from 45 cents per day for youthful labor under 21 years old to 70 cents per day for good adult day laborers. For the same class of labor we have to pay \$1.25 to \$2 per day at our manufacturing centers. The difference in skilled labor is still greater. The proportionately large number of chemists required in the manufacture of metals and alloys is also an important item, as an equally good chemist can be had in Europe for one-half the salary paid in this country. Labor in France costs about 70 to 80 cents per day.

About 85 per cent. of the cost of tungsten, molybdenum and vanadium is represented by labor. Ore mining, 60 to 65 per cent; chemicals, 15 per cent; fuel and supplies, 5 per cent; converting cost at chemical works, 20 per cent.

We would respectfully ask you to consider, in providing new tariff provisions, a duty on ferrotungsten, ferromolybdenum, ferrovanadium, tungsten metal, molybdenum metal and their salts, a just duty, which should be not less than 35 per cent. ad valorem.

As to tungsten ores, on account of the difference in the cost of labor in the United States and in foreign countries, it would be but fair and reasonable to place a duty of 20 per cent. ad valorem on tungsten ore, which is now on the free list.

Molybdenum and vanadium ores could also be produced in large quantities in the United States if they were protected by a duty of 10 to 20 per cent. to induce their production in the United States.

As the manufacture of high grade steels is so closely dependent upon the alloys and metals in question they should also be considered, and either an ad valorem duty provided for steel valued at above 16 cents per pound or such other provision as would protect this new industry.

The consumer of the finished product will not be prejudiced by the placing of a reasonable duty on the chemical-metallurgical products for which we ask a duty, nor by a duty upon ore or an increased duty on the high grade steels which are used for such high class work that an increase of a few cents in the cost will be no hardship to any one.

Corrugated Boiler Furnaces.

The Continental Iron Works, New York City, submitted the following statement:

As the manufacturer of corrugated boiler furnaces for land and marine boilers, we desire to place ourselves on record, first, as protesting against any reduction in the existing tariff on this product, and, second, to ask for a re-drawing of paragraph 152 of the tariff law for reasons hereinafter set forth. The necessary machinery for the production of corrugated boiler furnaces has been produced at large expense, but the market in this country for this article is exceedingly limited, and during the best of times the demand is not sufficiently great to approximately reach the producing capacity of our manufacturing plant. The present tariff rate is a specific duty of $2\frac{1}{2}$ cents per pound, and this rate we respectfully suggest be maintained in any revision of the tariff which may be made or contemplated.

At the present rate of duty we are able to just about meet the German and English prices for corrugated furnaces, but should the duty be any less we would not be able to ward off foreign competition, as the cost of material and labor entering into the construction of corrugated furnaces in Europe is roundly one-third less than what we pay in this country, and therefore we would be obliged to discontinue this portion of our business.

Even at the present rate of duty some corrugated furnaces are brought into this country from abroad, showing that any reduction in the present tariff would open the door to foreign manufacturers and the consequent injury to this company and the workmen in its employ. We respectfully suggest that section 152 of schedule C be redrawn in any future revision of the tariff schedule, in order to remove the ambiguity which at present exists in it and prevent any evasion of the payment of a duty of $2\frac{1}{2}$ cents per pound on corrugated boiler furnaces, which is clearly the intention of this clause.

We believe that, because of the uncertainty of its language, corrugated boiler furnaces have been brought into this country under the name of tubes or flues upon the payment of a duty of 2 cents per pound instead of $2\frac{1}{2}$ cents per pound. It is true that a corrugated furnace is cylindrical in form, but when the distinctive use to which it is applied in the construction of a steam boiler is considered, there is no process of reasoning which can be applied to bring it under the classification of a tube or flue; hence our request for an altering of this particular clause of this schedule. As it stands at present, it is possible to evade the prescribed tariff to the extent of 20 per cent., which is a serious detriment to our business and one which it is not possible for us to successfully meet should it be allowed to remain in force. In view of the foregoing, we suggest that clause 152 of schedule C, metals and manufactures of, be altered to read as follows:

Lap welded, butt welded, seamed or jointed iron or steel boiler tubes, pipes, flues or stays, not thinner than No. 16 wire gauge, 2 cents per pound; *welded cylindrical furnaces made from rolled plate, metal corrugated, wrapped or otherwise reinforced against collapsing pressure, $2\frac{1}{2}$ cents per pound*; all other iron or steel tubes, finished, not specially provided for in this act, 35 per centum ad valorem.

Pocket Cutlery.

The Holley Mfg. Company, Lakeville, Conn., presented the following statement:

Regarding the contemplated revision of the tariff as affecting the duties on pocket knives, clasp knives, pruning and budding knives, &c., we beg to say that we would be very glad to see the present duties increased. The present situation is sufficiently unfavorable, and in the event of any reduction in the tariff on cutlery would be disastrous to us.

The manufacture of pocket cutlery in the United States is one of the infant industries that has never been sufficiently protected. As a result there are comparatively few producers in this country and not above a half dozen of any size. Instead of large fortunes having been made in the business, there have been many failures.

Knives equal in quality to any made abroad are made in this country, and many more and in greater variety would be made if they could be marketed to advantage in competition with foreign goods. Working under patents affects this business very little, as the mechanical principle applied to pocket knives is in the main the same as it has been for centuries. The question is chiefly one of placing the product of plentiful cheap foreign skilled labor against the product of scarce, high priced skilled labor here. To meet the resultant competition American manufacturers have had their profits reduced to practically the vanishing point, whereas if a sufficiently high tariff prevented thousands of dealers from handling foreign made knives they would have to be sufficiently patriotic to use domestic goods.

We presume that letters of this general character will have less weight with the revisers of the tariff than exact schedules of comparative costs, &c. These latter will doubtless be supplied by the American Pocket Cutlery Manufacturers' Association, and we trust they will be given full consideration in arranging the details of the revision, but it seems to us that the uncontrovertible facts in this case are:

1. That the pocket cutlery industry in this country is relatively weak, composed of widely scattered units which it has been impossible, so far at least, to combine.

2. That foreign made knives are marketed in great quantities and are marketed to advantage, to the detriment of American products.

3. That the only persons affected favorably by the present schedule, and who would be further favorably affected by a reduction of duties, are a number of importers (usually of foreign extraction) in New York City and several other ports of entry.

4. That there is probably considerable opportunity for undervaluation of imports and other devious methods of evading the duties. We make no specific charges, but such conditions have existed in times past, possibly exist now, and if not properly guarded against will surely exist in the future.

Firearms and Ammunition.

An argument in favor of a reduction in the duty on shotgun and rifle ammunition, guns, rifles and revolvers was presented by Von Lengerke & Detmold, New York City, dealers in sportsmen's supplies, in which they call attention to what they consider excessive duties on empty shotgun and loaded rifle ammunition and also on guns, rifles and revolvers in general.

The Tariff Revision Programme.

WASHINGTON, D. C., November 24, 1908.—The tariff leaders of the House have practically completed their plans for the revision of the Dingley act, and the work will be pushed forward rapidly, with a view to insuring the taking effect of the new law on or before the first of the new fiscal year, beginning July 1 next. The correspondent of *The Iron Age* is in position to outline the plans and expectations of the Ways and Means Committee as carefully revised to date.

Framing of the Bill.

No steps looking to the framing of the new bill beyond the gathering of material will be taken by the committee until the conclusion of the hearings which began on the 10th inst. and will continue until December 4. It is improbable that any hearings will be held after the latter date, although private conferences with members of the Ways and Means Committee will doubtless be granted where the matter is of sufficient importance. Soon after the convening of the coming session of Congress, on December 7, the practical work of making the new tariff bill will be begun, and this task will be exclusively in the hands of the Republican members of the committee. The McKinley, Wilson and Dingley acts were framed in the first instance by subcommittees having charge of special schedules, and this plan will probably be followed in this case. After the schedules have been prepared and approved in their entirety by the Republican majority of the committee, the administrative provisions of the bill (sections 3 to 34) will be taken up and carefully revised.

This preliminary work will probably occupy the committee until some time in February, and when it is completed the bill will be submitted to the Democratic members of the committee, who will probably frame a measure of their own which they will offer as a substitute. President-elect Taft has announced that he will call a special session of Congress about the middle of March, and as soon as it convenes the majority and minority bills will be introduced and referred back to the Ways and Means Committee for formal consideration and report. Inasmuch as the membership of the committee in the new Congress will be practically identical with the present membership, it will not be necessary to give more than a few days' consideration to the bill, and a report can easily be made by April 1. It will be the policy of the House leaders to permit full and free discussion of the bill on the floor, and debate may proceed for two or three or even four weeks, but it will probably be passed by May 1. How long the bill will remain before the Senate Finance Committee cannot be accurately foreshadowed, but from the present outlook it seems probable that it will become a law about July 1.

The Date the New Law Becomes Effective.

Much interest attaches to the exact text of the enacting clause of the bill, which determines the date upon which the new law will go into force. In the case of the last three tariff acts there has been much controversy on this point because of the ambiguous language employed,

and it is but recently that the United States Supreme Court decided the last case involving these contentions. With a view to obviating all uncertainty in the case of the new law, the Ways and Means Committee has drafted a tentative enacting clause which provides as follows:

Be it enacted, &c., That on and after the day following the passage of this act, unless otherwise specially provided for in this act, there shall be levied, collected and paid upon all articles imported from foreign countries, and mentioned in the schedules herein contained, the rates of duty which are, by the schedules and paragraphs, respectively prescribed—namely:

The language adopted in the above section is intended to cut off all opportunity for the importation of merchandise after the bill is passed and before it goes into force. It should be stated in this connection, however, that a law passed by both houses of Congress and agreed to in conference may not go into force for 10 days thereafter, as it cannot become effective without the President's signature, which may not be attached until the expiration of that period. It will be remembered that the Wilson Tariff bill became a law without the President's signature 10 days after its certification to the White House. Inasmuch as the Wilson bill reduced duties, however, there was little incentive to make anticipatory importations, but the pending bill will embrace numerous increased rates, as, for example, the important class of ferroalloys now held by the courts to be dutiable at \$4 per ton by similitude to ferromanganese, will be advanced to at least 20 per cent., and enterprising importers would undoubtedly take advantage of any opportunity to bring in goods after the new rates are known and before they take effect.

Basket Clause Rates May Be Raised.

The necessity for raising additional revenue under the new tariff act has attracted the attention of members of the Ways and Means Committee to the fact that the so-called basket clause of the Dingley law provides for very low rates of duty as compared with the average ad valorem of the act, which is estimated at 47 per cent. The basket clause, which is found in section 6, provides a rate of 20 per cent. on unenumerated manufactured articles and of but 10 per cent. on unenumerated unmanufactured articles. In classifying merchandise every effort is made by the appraising officers to put it into a category specially provided for by law, but when this effort fails it is frequently necessary to resort to the provisions of section 6. The result is that large quantities of highly manufactured merchandise are annually brought in at 20 per cent., or only about two-fifths of the average rate of duty assessed under the Dingley act as a whole. It has been suggested to the committee that the rate on unenumerated manufactured articles should be increased to 40 per cent., and that on unenumerated unmanufactured articles to 20 per cent., and it is estimated that should these changes be made several million dollars additional revenue would be secured. It goes without saying that many articles heretofore unspecified, which have paid duty under the basket clause, will be removed therefrom in the course of the revision now in progress, and rates of duty ranging from 25 to 50 per cent. fixed thereon. It may be assumed, however, that a considerable number of commodities will still be classable under the basket clause, and this category will naturally increase with advances in the manufacturing industries hereafter.

The attention of the tariff leaders has been drawn to the apparent conflict between sections 6 and 7 of the Dingley act, and the suggestion has been made that the text of both sections be clarified in connection with the prospective revision. Section 6, which is known as the basket clause, provides rates of duty on unenumerated products, both manufactured and unmanufactured. Section 7, however, provides that "each and every imported article not enumerated in this act which is similar either in material, quality, texture or the use to which it may be applied, to any article enumerated in this act, is chargeable with duty, shall pay the same rate of duty which is levied on the enumerated article which it most resembles in any of the particulars before mentioned, &c." The point is made in this connection that both these sections impose duties on unenumerated products, and it is a well-known fact that there has been much litigation based upon the question as to whether certain

unenumerated goods were dutiable under the basket clause or by similitude to some enumerated article. It is suggested that the text of section 6 be so amended that no product shall be classified thereunder provided it can be classified under section 7 at a higher rate of duty.

Maximum and Minimum Schedules.

While the form of the new tariff bill with respect to the maximum and minimum schedules has not yet been definitely determined, it is confidently predicted here that the German system will be adopted with two rates for each enumerated item. In the case of American industries requiring the largest measure of protection, and which might be injured by any concession, no matter how small, the maximum and minimum rates will be identical. In cases where high protection is not necessary for the welfare of the domestic industry and where no great amount of foreign competition is to be feared, the difference between the maximum and minimum duties will be relatively large, it being the purpose of Congress to use this margin for trading purposes to secure reciprocal concessions in foreign tariffs on American products. As heretofore intimated, it is the general impression that the average margin between the maximum and minimum rates of the entire tariff will be about 20 per cent.

Under the proposed plan treaties negotiated by the State Department would be promulgated immediately and would not require ratification by the Senate or subsequent legislation by Congress. Such conventions would go into force upon the President's proclamation, as has been the case with the limited treaties negotiated under section 3 of the Dingley act, which authorizes reciprocal trade agreements in which the United States concedes certain percentages in the duties on argols (crude tartar), brandies, champagnes, still wines and works of art.

Many members of the House are receiving communications urging the retention in the proposed new tariff law of section 11 of the Dingley act, which is intended to prevent the importation of goods bearing trademarks simulating those of domestic products. The section, which it is probable the committee will recommend for re-enactment, provides as follows:

Sec. 11. That no article of imported merchandise which shall copy or simulate the name or trademark of any domestic manufacture or manufacturer, or which shall bear a name or mark which is calculated to induce the public to believe that the article is manufactured in the United States, shall be admitted to entry at any custom house of the United States. And in order to aid the officers of the customs in enforcing this prohibition, any domestic manufacturer who has adopted trademarks may require his name and residence and a description of his trademarks to be recorded in books which shall be kept for that purpose in the Department of the Treasury, under such regulations as the Secretary of the Treasury shall prescribe, and may furnish to the department facsimiles of such trademark; and thereupon the Secretary of the Treasury shall cause one or more copies of the same to be transmitted to each collector or other proper officer of the customs.

There is no doubt that Congress will re-enact the above provision, possibly with slight verbal changes to increase its efficiency.

To Liberalize the Drawback Law.

The Ways and Means Committee is in receipt of inquiries as to the opportunity that will be given to those interested in the amendment of the existing drawback law, as found in section 30 of the Dingley act, to present arguments in behalf of a more liberal provision. In reply it is stated on behalf of the committee that the drawback section will be considered on Friday, December 4, when the administrative features of the Dingley act as embraced in sections 3 to 34 are taken up. In view of the importance of these sections and the great variety of subjects embraced therein the committee has set aside December 4 and 5 and will devote the two days entirely to hearings thereon. A strong disposition is manifested by members of the committee to go into the question of the liberalization of the drawback law very thoroughly and to investigate every phase of it with a view to providing as liberal a statute as the proper protection of the revenues will permit. To this end it is understood that considerable information is now being obtained regarding the practical operation of the exceedingly liberal drawback law of France, under

which certificates of importation obtained from collectors on the withdrawal of imported raw materials at any port may be used as the basis of drawback claims on the exportation at other ports of goods made from similar materials, whether of foreign or domestic origin.

The committee has been urged to adopt the substitution principle involved in the French law, and it has been asserted with much emphasis that no possible loss to the revenues could occur, while, on the other hand, the export business of the country would develop rapidly under such a system. It is significant that Speaker Cannon, in the course of a speech delivered since the election, has come out squarely for a more liberal drawback law, and it is believed that he will exert his influence with the committee for the thorough revision of section 30. The tariff leaders of both houses anticipate the overproduction of merchandise in many lines before the tariff is again revised, and, therefore, they are strongly disposed to do anything in reason to stimulate the export trade.

W. L. C.

Mineral Products of the United States in 1907.

The value of the mineral products of the United States in 1907 reached the enormous total of \$2,069,289,196, surpassing the value of the same products in 1906 by \$165,282,162, or 8.68 per cent., that of 1905 by 27.33 per cent., and of 1904 by 58.81 per cent. Both metallic and nonmetallic products contributed to the gain.

Two minerals—coal and iron—are credited with approximately 55 per cent. of the total for the country, and three more—copper, clay products and petroleum—furnish about 22 per cent., the five contributing about 77 per cent. of the whole. The minerals whose output in 1907 was valued at more than \$5,000,000 are listed in the following table:

Value of More Important Minerals Produced in the United States in 1907.

Coal	\$614,798,898	Silver	\$37,299,700
Iron	529,958,000	Zinc	26,401,910
Copper	173,799,300	Sand, gravel, &c...	13,242,002
Clay products....	158,942,369	Lime	12,640,512
Petroleum	120,106,749	Phosphate rock...	10,653,558
Gold	90,435,700	Salt	7,439,551
Stone	71,105,805	Mineral waters...	7,331,503
Cement	55,903,851	Zinc white.....	6,490,660
Natural gas.....	52,866,835	Slate	6,019,220
Lead	38,707,576	Sulphur	5,142,850

Products whose output exceeded \$1,000,000 in value were gypsum, valued at \$4,942,264; aluminum, \$4,926,948; mineral paints, \$2,979,158; asphalt, \$2,826,489; glass sand, \$1,250,067; sand-lime brick, \$1,225,769, and borax (crude), \$1,121,520.

The total value of the metallic products in 1907 was \$903,024,005; of the nonmetallic products, \$1,166,165,191; \$100,000, estimated as the value of such mineral products as molybdenum, nickel, titanium, not reported in detail, brings the total to the amount stated.

Pennsylvania, reporting mineral products valued at \$657,783,345, has no close rival for first place among the States, for Ohio, which is second, reports products valued at \$207,657,339, while the mineral products of Illinois, the State ranking third, were valued in 1907 at \$145,768,464. The figures presented in the foregoing paragraphs are taken from a summary of the mineral production of the United States in 1907, compiled by W. T. Thom of the United States Geological Survey, and published by the Survey as an advance chapter from "Mineral Resources of the United States, Calendar Year 1907." This chapter is now ready for distribution and may be obtained by applying to the Director of the Survey at Washington, D. C.

The Weatherly Foundry & Machine Company, Weatherly, Pa., has purchased the machinery, patents, &c., of the H. A. Frantz Mfg. Company, Cherryville, Pa., manufacturer of kerosene, oil and gas engines. The equipment will be moved to Weatherly, where the manufacture of gas engines will be started as soon as the machinery can be placed.

The Canadian Government's Steel Policy.

TORONTO, November 21, 1908.—Adherence to a defensive trade policy is so much the rule of governments that no particular case of it is regarded as a provocation. An aggressive trade policy on the part of governments is likewise accepted outside as a matter of the Government's own domestic business. It is seldom, however, that the defensive and the aggressive are joined in so striking a way as in the case of the Dominion Government's fostering of the steel industry. Heavy protective duties are levied on imports of steel, and large bounties are granted exports of staple products of steel. Steel rails produced in other countries cannot get into Canada except on payment of duties ranging from \$4.50 to \$9.33 1-3 per ton, according as they come from Great Britain, from countries entitled to the intermediate tariff rates, from countries against which the general tariff rates stand, or from Germany. Canadian steel rail makers, fortified by Government help in the home market, are also generously aided by the Government to overcome competitors in the export markets. With a bounty of \$2.10 per ton on the pig iron form of their material, and one of \$1.65 per ton on the crude steel form, they draw \$3.75 per ton of Government money. Thus with Government money they hold the domestic market against outside competitors, and with Government money they win trade from outside competitors in the external markets.

In the opinion of a British manufacturer who is now in Canada, and who spoke with the belief that he expressed the sense of his colleagues, this interest of the Canadian Government in the mercantile business of private corporation goes beyond the generally recognized limits. It makes a bad impression, he considers, and is especially displeasing to the British people. It would hardly be a cruder form of selfishness for the Government to go into rail making itself, exclude foreign rails by prohibitive duties and compete at low sacrifice prices against foreign rail makers in the outside markets. To the British steel makers, it was pointed out, the German steel syndicate export bounties were peculiarly odious. But if the associated German makers choose to tax themselves to pay the bounties, that is their affair and is not chargeable to the German Government, except insofar as the duty on rails permits the syndicate to recoup itself by keeping prices high at home. In the case of Canada's steel trade, however, it is the Government that enables the price cutting to be practiced. Besides being offensive, the Government's part in the business is inconsistent with its own professed tariff principles. If dumping is so bad a thing that it is finable under the Canadian tariff, is it any better when it is done in other countries with the aid of the Dominion Government itself?

How, it is asked, can it be expected that on foodstuffs imported from non-British countries the United Kingdom will impose customs duties in order to waive them on a large percentage thereof in favor of Canada? To speak of this rail business alone, Canada handicaps British competitors in its domestic market and subsidizes opposition to them in the external markets. Canadian policy takes but does not give, and there can be no further favors for Britain except on a *quid pro quo* basis. It would not be illogical, and would be rather human, were Britain to impose countervailing duties on rails whose production was assisted by a bounty. That would be in accordance with the existing treaty provision for dealing with imports of bounty fostered sugar.

Newfoundland is one of the self-governing communities of the British Empire, as Canada itself is. Were Newfoundland to decide in its own interest to put a prohibitory export duty on iron ore its conduct would be regarded as harsh toward a sister State of the empire, and as at variance with the new spirit of imperial fellowship. But it would be more defensible than the Government bonusing of Canadian products to be dumped on markets which British traders depend on for business. Certainly the exporters of Canadian rails are much dependent on Government favor. The withdrawal of the bounties and the duties they owe to the Canadian Government; the high taxing of their ore supply by the

Newfoundland Government; the raising of the rail duties by the governments of rail importing countries, or the refusal of orders by governments owning railroad systems—any of these things would have a very adverse effect upon the Canadian rail export trade. C. A. C. J.

PERSONAL.

Frank S. Witherbee of Witherbee, Sherman & Co., Port Henry, N. Y., has returned from Europe.

W. Funcke of Funcke-Hueck, Hagen, Westphalia, one of the leading iron and hardware manufacturers of Germany, sailed for home this week, after having traveled extensively in this country.

Paul J. Kalman, 805 Pioneer Press Building, St. Paul, Minn., Northwestern railroad representative for the Detroit Seamless Steel Tubes Company, Detroit, Mich., is, in addition to the railroad business, now handling in St. Paul and Minneapolis the full line of seamless steel tubing manufactured by that company, including stationary boiler flues and mechanical tubing for automobile construction and other purposes.

Fred Herbert, of the Birtley Iron Works, Newcastle, England, accompanied by his son, is now in this country for the purpose of making arrangements to erect the new cast iron pipe foundry for J. B. Clow & Son, Coshocton, Ohio. This will be the introduction in America of Mr. Herbert's system of casting pipe which is in successful operation abroad.

Emil Swensson, consulting engineer, Pittsburgh, returned last week from a European trip devoted in part to a study of methods of preventing destructive river floods and of protection against them.

William Barry, an American engineer, has been chosen by Finance Minister Kokovsoff of Russia, to be president of the Nevsky Shipbuilding Company, St. Petersburg, which gets a large share of Russian naval construction work.

James Gayley has resigned as first vice-president of the United States Steel Corporation and has also retired from the Board of Directors. No successor has thus far been elected to fill the vacated office, but on Tuesday Alfred Clifford, St. Louis, was elected a director to take Mr. Gayley's place on the board.

A. H. Carpenter has resigned his position with the United States Steel Corporation as Chicago manager of pig iron sales for the Tennessee Coal, Iron & Railroad Company's furnaces, to take the active management of the Birmingham Car & Mfg. Company, of which he is vice-president and general manager.

The Fabricated Steel Situation.

During the recent annual meeting of the officers of the American Bridge Company of New York at Buffalo, N. Y., November 17 and 18, the data presented showed some rather curious figures, not at all complimentary to the fabricators of steel throughout the United States. It is well known that the price of fabricated steel has in the last year declined out of all proportion to the price of plain material. To one who sees only the prices quoted the inference would naturally be that the volume of business was totally inadequate, and that the low prices were justified by fear on the part of the fabricators that they would have to shut down their plants unless they secured each individual order that came in the market. The figures compiled from records of the American Bridge Company's different offices throughout the country (foreign orders not included) show up as follows for the year ending October 31:

	1907.—Tons.	1908.—Tons.
Bid on.....	1,406,669	1,588,131
Not built.....	503,879	362,004
Built.....	902,790	1,226,127

Of the above work, in 1907 the American Bridge Company secured over one-half that went ahead. In 1908 it secured less than one-fifth. These figures would indicate, beyond chance of a doubt, that the average purchaser of fabricated steel got the best of the average seller of that commodity.

OBITUARY.

GEORGE A. FAIRFIELD.

George A. Fairfield, Hartford, Conn., who died suddenly November 9, was very prominently identified with the building up of the manufacturing industry of that city, and especially with the development of the Hartford Machine Screw Company. He was born in Lansingburg, N. Y., March 20, 1834, and as a child went with his parents to western Massachusetts where he lived on a farm and attended school until he was 17 years old, when he entered upon an apprenticeship as a machinist at Northampton, Mass. He worked at his trade at the Holyoke Machine Works, Holyoke, Mass., and later with Wilcox & Gwyné, Urbana, Ohio, and Entwhistle & Moore, Richmond, Va. During the Crimean war he was with Robins & Lawrence, Windsor, Vt., working on a contract for guns for the British Government, and afterward went to Springfield, Mass., where he was active in developing special machinery for the Government armory. He continued this class of work at the Colt's firearms factory at Hartford in 1857, on a contract for gun manufacturing machinery for the Russian Government. Later he took a contract at the Colt's shops, becoming the largest contractor in the establishment.

In 1858 Mr. Fairfield opened the first school for mechanical drawing in Hartford; its members included men who afterward became prominent as engineers and mechanics. In 1865 he became identified with the Weed Sewing Machine Company, and built up the business to one of much importance. At the time when the sewing machine business had become overdone he met Col. Albert L. Pope and arranged with him to manufacture the first modern bicycle, which constituted the beginning of one of Hartford's most conspicuous industries. In 1876 C. M. Spencer, the inventor of a famous rifle, took floor space in the Weed shops for the manufacture of screws with automatic machinery, which he had invented. Mr. Fairfield took an interest in the business, and under his management it grew to be the great Hartford Machine Screw Company, now a constituent part of the Standard Screw Company. He was a director of the Hartford Steam Boiler Inspection & Insurance Company, Hartford County Mutual Fire Insurance Company, Mechanics' Savings Bank, Hartford National Bank and the Hartford County Fire Insurance Company, and at his death had been for several years the secretary of the Hartford Board of Trade. He leaves a widow, a son and daughter.

ELMER G. EBERHARDT.

Elmer G. Eberhardt, vice-president of the Newark Gear Cutting Machine Company, Newark, N. J., died November 21, after an illness of nearly a year, aged 27 years. He was born in Newark, was graduated from the High School in 1896 at the age of 15 years, and at once entered Stevens' Institute, Hoboken, N. J. He was soon at the head of his class, but decided, in his second year, to take up machine shop work with his father, Henry E. Eberhardt. He accordingly discontinued his course and began the work of designing and constructing automatic gear cutting machines and crank shapers. He took out a number of patents on original inventions relating to these machines and on general machine tools. After several years at this work he decided to finish his technical education, and therefore entered Sibley College of Cornell University in February, 1901, and was graduated in June, 1904, with the degree of mechanical engineer. In his senior year he was elected president of the Cornell Institute of Electrical Engineers and vice-president of the Cornell Society of Mechanical Engineers. At the close of his course he was awarded the honorary key of the Sigma Xi for high scholarship in the engineering studies. Upon his graduation he formed, with his father and brothers, the machine tool building firm of Eberhardt Brothers Machine Company, which is now the Newark Gear Cutting Machine Company. He was engaged in the designing and construction of its automatic gear cutting machines and crank shapers. Mr. Eberhardt was well known among the mechanical people by reason of

his work. He was a contributor to the columns of the technical and mechanical papers, and had a wide reputation as a consulting engineer upon matters especially relating to gears and gear cutting. He was an associate member of both the American Society of Mechanical Engineers and the American Institute of Electrical Engineers. He is survived by both his parents, and one sister and four brothers. His father and three of the brothers are engaged in the business with which he was identified.

The recent death of GEN. JOHN E. MULFORD, at his home in Montour Falls, N. Y., in his eightieth year, has called out many expressions in the daily press both South and North, growing out of his prominence as Federal commissioner for the exchange of prisoners of war in the 60's, and indicating the affection and honor in which he was held. It was a delicate duty requiring the exercise of special tact and resourcefulness to manage wisely this exchange of prisoners, and the way in which it was performed is still affectionately remembered by many. In 1877 General Mulford founded the Prentiss Vise Company, Watertown, N. Y., of which he was president for 31 years, the New York house being in charge of his son, Edwin H. Mulford.

JOSEPH BRYAN, owner of the *Times-Dispatch*, Richmond, Va., died November 20, aged 63 years. He was a native of Virginia, and for a long time managed the Richmond Locomotive Works, continuing in that capacity after its absorption by the American Locomotive Company. He was a director in the Sloss-Sheffield Steel & Iron Company, the Birmingham Land Company and the Southern Railway Company.

MICHAEL HIGGINS, SR., president of the Higgins Spring & Axle Company, Racine, Wis., died November 17, aged 74 years. He was born in Ireland and came to America when a child, locating first in New York. In 1889 he went to Racine and became associated with his son, Michael Higgins, Jr., in the manufacture of springs and axles for carriages and wagons.

W. S. MCKINNON, State Treasurer of Ohio, died November 17, at his home in Ashtabula, Ohio, aged 56 years. He established the McKinnon Iron Works in Ashtabula in 1880 and was connected with the concern until his death.

ALFRED MARSH, who is claimed to have invented the gas meter, died November 17 at Kalamazoo, Mich., aged 90 years. He was born in England, but for many years was employed by a gas company of New York City.

The Fitzsimons Company.—The business of Fitzsimons & Co., Cleveland, Ohio, a partnership concern, and of the Finished Steel Company, Youngstown, Ohio, a corporation, both manufacturers of shafting and special shapes for various purposes, has been reorganized and succeeded by the Fitzsimons Company, a corporation. The new company will continue to manufacture the same lines, which comprise polished shafting and special shapes, piston screw and pump rods, bridge pins, round, square and hexagon shapes, &c.

The Gary Plant.—It is probable that two of the blast furnaces of the Indiana Steel Company, at Gary, Ind., will be started before the beginning of the new year. It is not likely that any steel will be made, the furnaces being blown in merely to tune up the plant, and particularly the engines to be driven with waste blast furnace gas.

The Indiana Rolling Mill Company, New Castle, Ind., whose shovel plant, located about 1 mile distant from the mill, was partially destroyed by fire last summer, is now engaged in restoring this department. The new building for the accommodation of the shovel plant will not be located on the old site, but for convenience in the handling of material is being erected near the rolling mill, where the steel can be transferred to the factory without hauling. It is expected that the new quarters will be ready for occupancy about the first of the year.

NEWS OF THE WORKS.

Iron and Steel.

Vollkommer & Hagan, Pittsburgh, are rebuilding an open hearth furnace at the plant of the American Steel & Iron Company, Norwalk, Ohio. The furnace is being enlarged from 20 to 30 tons capacity. This is the second furnace contract the firm has had at the plant named.

The Williamsport Iron & Nail Company, Williamsport, Pa., is rebuilding its plant which was recently destroyed by fire.

The Superior Steel Company, Carnegie, Pa., near Pittsburgh, manufacturer of hot and cold rolled strip steel, is making important improvements to its plant. The McClintic-Marshall Construction Company, Pittsburgh, has the contract for the erection of a 70 x 150 ft. steel runway on which an Alfred Box & Co. electric traveling crane will be operated for carrying billets, &c., from the stockyards to the furnaces. The Penn Bridge Company, Beaver Falls, Pa., has the contract for a 70 x 88 ft. structural steel addition, to be made to the present boiler house, on which work will be commenced at once, and the Erie City Iron Works, Erie, Pa., is furnishing six 400-hp. water tube boilers, which will be equipped with Jones underfed stokers. The Superior Steel Company reports business good and it expects to be operating its plant to a larger capacity before long, due to the improvement in orders.

Hamilton Furnace, at Hanging Rock, Ohio, blew out November 15 for relining and repairs, and will blow in about January 1.

General Machinery.

The Cutler-Hammer Company, Milwaukee, Wis., manufacturer of electric controlling devices, will make two large additions to its plant, involving the expenditures of more than \$75,000. An addition to the main plant, extending for half a block along the railroad tracks, 75 ft. in width, three stories, and a new warehouse, 160 ft., two stories, will be completed in the spring.

The Garwood Electric Company, Garwood, N. J., has been incorporated to manufacture electric apparatus. E. A. Keegan is interested.

The American Electrical Heater Company, Detroit, Mich., has not yet decided upon the additional machinery it will require for equipping the new building it is constructing. It will be 136 x 200 ft., and cost about \$60,000.

The Davis Mfg. Company, Milwaukee, Wis., which has a new shop, 100 x 150 ft., under construction, is arranging to run the machinery equipment with individual automobile engines of its own design and construction attached to each line shaft. The same results are expected as are secured from electric motor group driven systems. A complete heating and ventilating system is being installed in the shop.

The Wasatch Electric Service Company, Salt Lake City, Utah, recently incorporated with a capital stock of \$20,000, will deal in dynamos, motors, electric supplies, and will also act in the capacity of hydro-electric engineer for the construction of water power plants. The officers of the company are: Tony Jacobson, president; Sam S. Porter, vice-president; Robert D. McCreery, secretary and treasurer.

The Champion Shoe Machine Company, St. Louis, Mo., has purchased a site, 170 x 182 ft., on Forest Park boulevard, near Spring avenue, which will be immediately improved by the erection of a factory building comprising about 40,000 sq. ft. of floor surface. The new plant will afford about four times the capacity of the present shop.

The Grafton Machine & Iron Works Company, Grafton, Wis., has been incorporated with a capital stock of \$10,000 and expects to be in operation about December 10. The company's officers are as follows: Albert Kath, president; Charles Thiermann, vice-president, and Edward Mueller, secretary and treasurer.

The Schatz Mfg. Company, Chappaqua, N. Y., recently incorporated, has taken over the plants of the Schatz Hardware Mfg. Company, Acme Ball Bearing Company and the Acme Ball Bearing Sales Company, and will continue to manufacture the Acme castor, hardware specialties, mechanics' tools, sheet metal stampings and all other lines made by the acquired companies. The new company will also deal in hardware and machinery, acting as manufacturers' agent. It is now selling and manufacturing a line of lever and power shears and punches for cutting plates, bars, squares, rounds, angles, beams, &c., and is prepared to furnish any tool for this work, from the smallest up to the largest requirements. The factories are located at Chappaqua, N. Y., and at Weingarten, Wurttemberg, Germany. The New York office is at 56 Warren street. George D. Mackey is president; J. W. Schatz, vice-president; H. A. Schatz, secretary and treasurer; Donald Mackey, assistant treasurer; Adolph Schatz, general manager manufacturing departments, and S. A. Cosgrave, sales manager.

The Jamestown Shoe Machinery Company, Jamestown, N. Y., has been incorporated by Arthur H. Hitchcock, James E. Toscan and William M. Rohn, to manufacture shoe making and shoe repairing machinery.

The Central City Refrigerating Company, Syracuse, N. Y.,

has been organized by Howard G. Case, Horace H. Harriman, Richard S. M. Mitchell, George B. Case and Charles E. Spencer for the purpose of erecting a large cold storage warehouse. A large steam power plant and ice making machinery will be installed.

Power Plant Equipment.

The Babcock & Wilcox Company, Farmers' Bank Building, Pittsburgh, has received an order from the Pennsylvania Coal & Coke Company, Cresson, Pa., for 250 hp. of Stirling water tube boilers.

The Crocker-Wheeler Company, Ampere, N. J., has secured contract to equip the textile mill of the Windham Mfg. Company, Willimantic, Conn., with electric drive, and has just shipped a complete electric power system, including motors, transformers and switchboards, to the plant. The equipment consists of nine 550-volt induction motors, aggregating about 500 hp., to be used to drive the machinery in the mill. The generating equipment includes two 500-kw. generators. The motors are all arranged for ceiling suspension.

The Board of Commissioners of Covington, Ga., will receive bids until December 2 for the construction of water and sewerage systems, the work to include about 400 tons of 6 to 10-in. cast iron pipe, stand pipe, two compound pumping engines, one turbine pump and motor, brick pumping station, &c.

The Pend d'Oreille Electric Company, Sandpoint, Idaho, will erect a large hydraulic plant, the requirements to include water wheels, dynamos, switchboard, transformers, &c.

The Borough Council of Haddonsfield, N. J., will receive bids until December 1 for two 1,000,000-gal. pump units, steam, gas producer or gasoline, power house and foundations, stand pipe 110 ft. high, about 11 miles of cast iron or other approved pipe, and other accessories, for the construction of a municipal water works.

The Public Service Commission has authorized the Broadalbin Electric Light & Power Company, Broadalbin, N. Y., to issue capital stock to the amount of \$42,500, and \$10,000 in bonds, the proceeds to be used to pay the present obligations of the company, amounting to about \$13,000, and the remainder to be used for the construction of a dam, power house, equipment and transmission lines.

The town of Waverly, Iowa, has authorized a bond issue of \$30,000 for the purpose of rebuilding the electric light and water plant recently destroyed by fire.

S. T. Benson & Co., Falconer, N. Y., were awarded general contract for pumps, power equipment and piping for the water works system to be installed at Sherman. The contract was erroneously reported to have been given to Benson & Johnson, Jamestown, N. Y., in our last issue.

The Hornberger Transformer Company, La Fayette, Ind., has secured the factory building formerly occupied by the Polar Creamery Company, which it is now equipping with machinery for the manufacture of its product. The Hornberger transformers, which were formerly made by the La Fayette Electrical Mfg. Company, will now be made in this plant.

T. E. McGarr, secretary of the State Commission in Lunacy, Capital Building, Albany, N. Y., will receive sealed bids until December 2 for the installation of engine and dynamo and underground feeders at the Gowanda State Hospital, Gowanda, N. Y. Plans and specifications can be had by application to the State Architect, Franklin B. Ware, Capital Building, Albany.

Consulting Engineer A. S. Crocker, Mechanics' Institute, Rochester, N. Y., is preparing plans for municipal lighting plant to be erected at Bergen, N. Y., for the Board of Village Trustees. Details of equipment have not yet been fully determined, but plant will consist of two horizontal tubular boilers and two direct connected steam engine driven generators. Bids will be called for in a few weeks by the Electric Light Committee of the Village Council.

Consulting Engineer J. J. O'Leary, 63 Niagara street, Buffalo, N. Y., has completed plans for the electric generating plant to be installed in the City and County Building for the City Council and the Board of Supervisors at an estimated cost of \$75,000. Plans have been submitted to the Council and Board of Supervisors for approval, and contracts will then be awarded. Boiler plant is already installed. Generating units are to be direct connected to high speed engines.

Foundries.

The Malleable Iron Company, Beaver Dam, Wis., now has its entire plant in operation, employing 800 men, and is working day and night. The company has in course of construction a new \$20,000 office building.

The old Marinette Iron Works foundry, Marinette, Wis., recently operated by the Marinette Iron Mfg. Company, has been taken over by a new concern organized by James Stanton, formerly of the Prescott Company of that city.

The Northern Engineering Works, Detroit, Mich., has recently installed a complete foundry equipment in the plant of the Auburn Foundry Company, Auburn, Ind., consisting of elevators, Newton cupola, tumblers, trucks, &c., and has recently sold to the Smith Mfg. Company, Bessemer, Ala., a Newton cupola of from 5 to 6 tons hourly capacity.

The American Malleable Company, Lancaster, N. Y., will double the capacity of its plant by the erection of two wings to the present main building, each to be about 200 ft. long and containing eight annealing ovens. The company has also purchased additional land adjoining, upon which a pattern shop will be built and later a new office building.

The Traylor-Watson Brass & Iron Works, Memphis, Tenn., is erecting a new plant which will be used as a foundry and machine shop, special attention being made to the making of brass, bell metal, bronze and gray iron castings. Orders have been placed for the present machinery requirements, but the firm will likely be in the market for other tools later on. L. E. Traylor and H. W. Watson compose the firm.

The Ohio Steel Foundry Company, Lima, Ohio, states that plans for the extension of its main building, 200 ft., are under way, and that it is now running full capacity.

Bridges and Buildings.

The Milwaukee Bridge Company, Milwaukee, Wis., will build a \$30,000 addition to its shops at Thirty-fourth street and Concordia avenue.

The contract for the steelwork to be erected for the Lozier Motor Company, Plattsburgh, N. Y., consisting of about 250 tons of structural steel, has been awarded to the Berlin Construction Company, at its bid of \$9915.

F. C. Stevens, Superintendent of Public Works, Capital Building, Albany, N. Y., will receive sealed bids until December 3 for constructing a lift bridge over the Erie Canal at Allen street, and a lift bridge over the Erie Canal at Lyell avenue, Rochester, N. Y.

Fires.

The foundry and the enameling, tumbling and grinding rooms of the Indiana Mfg. Company, maker of hollow ware, at the Indiana Reformatory, Jeffersonville, Ind., were totally destroyed by fire November 15, with loss estimated at \$125,000 to \$150,000, which is covered by two-thirds insurance. The foundry was a one-story brick building, 140 x 320 ft.

Winter Brothers' ice factory and Nelson Morris & Co.'s packing plant at Cairo, Ill., were burned November 16, with \$150,000 loss.

The plant of the Florence Pump & Lumber Company, Mobile, Ala., was damaged by fire November 17.

The factory building occupied by the Skalen Steel Casket Company and the Syracuse Aluminum & Bronze Company, at 523 Leavenworth avenue, Syracuse, N. Y., was recently damaged \$10,000 by fire.

The plant of the Snyder & Baker Stove Company, Belleville, Ill., was damaged \$7000 by fire November 23.

The plant of the Mobile Stove Works, Mobile, Ala., was damaged \$10,000 by fire November 19.

Hardware.

The Crosby Company, Buffalo, N. Y., is planning to erect an extensive addition to its plant on Pratt street for the manufacture of stamped sheet metal goods. The company has purchased the Curtiss malt house, having a frontage of 189 ft., and will remodel it into a three-story factory and will after the first of the year erect a four-story addition of brick and structural steel, giving a total frontage of 400 ft. on Pratt street.

The Petoskey Block & Mfg. Company, Petoskey, Mich., whose plant was recently partially destroyed by fire, has decided to resume business, and is reconstructing the burned buildings. The new portion of the factory will be equipped with new machinery, including a power plant which, together with other improvements, will require an expenditure of about \$30,000.

The John Rauschenberger Company, Milwaukee, Wis., manufacturer of rope, twine and cordage, is erecting a new building, 70 x 160 ft., two stories in height, which will cost about \$25,000, and will be used partly for storage and partly for the manufacture of cordage and hair goods.

Miscellaneous.

The Erie City Iron Works, Erie, Pa., will erect a large warehouse in Houston, Texas, for which a site, 100 x 250 ft., has been acquired. H. A. Paine is representative in Houston.

The C. J. Tagliabue Mfg. Company, New York, is making arrangements for the erecting of a factory at Cleveland, Oswego County, N. Y., for the manufacture of thermometers.

The United States Radiator Company, Dunkirk, N. Y., is about to start construction on a warehouse building, 72 x 224 ft., to be erected on Wright street adjoining the present plant.

The Buffalo Expanded Metal Company, Morgan Building, Buffalo, N. Y., has reduced its capital from \$50,000 to \$30,000.

The Dain Mfg. Company, Ottumwa, Iowa, which has had under consideration several Canadian cities as the location for a branch Canadian factory for the manufacture of haying machinery, has purchased property at Welland, Ontario, and will soon start construction of a large factory.

William I. Schaffer has been appointed receiver for the Delaware River Shipbuilding & Engine Company, Chester, Pa. The works, which are better known as the Roach Shipyards, shut down a few weeks ago.

The addition to be constructed to the plant of the German-American Car Company, Warren, Ohio, will be 100 x 125 ft. The

new building will double the present shop space and permit of a considerable increased output of tank cars.

The Ford & Kendig Company, Philadelphia, Pa., is to erect a two-story factory building, 35 x 110 ft., with a wing 40 x 100 ft.

The Nashville Saddlery Company, Nashville, Tenn., whose plant was recently destroyed by fire, will rebuild as quickly as possible. The machinery that will be required is nearly all special.

The Champion Saw & Gas Engine Company, Beaver Falls, Pa., which for the past two months has been operated by S. C. Dally, receiver, Sewickley, Pa., will on December 7, at 2 p.m., be offered at public sale to satisfy a lien. It includes 2 acres of ground, a 46 x 150 ft. frame building, a 24 x 50 ft. tempering room, and a small office building. A sale of the stock of saws and gas engine parts will follow on December 17, at 2 p.m. It is possible that a reorganization may be effected.

The Clear Lake Boat Shop Company, Clear Lake, Iowa, has been organized to build motor boats and other forms of pleasure craft. Plans are now prepared for three boats which will require engines and other fixtures.

The Ogdensburg Soda Pulp Company, Ogdensburg, N. Y., recently organized, is preparing to erect a large pulp mill with a daily capacity of 25 tons. Construction work will be started next spring. The product of the mill is to be a bleached soda pulp used in the manufacture of high grade stationery. A large steam power plant will be installed.

A new factory building, the estimated cost of which is \$50,000, is being erected by the East Portland Mill & Fixture Company and the Portland Pulley Company at East Portland, Ore.

The Bendix Automobile Company has been incorporated at Logansport, Ind., with \$200,000 capital stock. The company has agreed to move its plant from Chicago to Logansport, the latter city through its business men having subscribed for \$75,000 of stock in the company. The directors are H. Clay Calhoun, V. Bendix and F. W. Patterson. The company at present employs 200 men, and it is proposed to increase the number to 500.

The works of the Reo Motor Car Company, Lansing, Mich., have been enlarged by the addition of three modern buildings which are now completed and occupied. All of the machinery required for the equipment of these additions has been installed and is now in use.

Edward H. Perry, superintendent of the State Reservation, Niagara Falls, N. Y., will receive sealed bids until December 4 for elevators, hoists and motor equipment, steel cable, &c., the equipment to be installed in the Cave of the Winds to take the place of the present incline railroad. The estimated cost is \$90,000. Complete plans and specifications will be furnished prospective bidders on application to the State Architect, Franklin B. Ware, Capitol Building, Albany.

The Bingham-Jordan Automobile Company, Minneapolis, Minn., has been organized with a capital stock of \$50,000, of which \$20,000 is paid in. The incorporators are George Bingham, Eva Bingham and T. C. Jordan.

The Boone Automobile Company, Boone, Iowa, recently organized to build and sell automobiles, is erecting a one-story and basement brick building, 50 x 75 ft., for the accommodation of its work.

Vollkommer & Co., Empire Building, Pittsburgh, manufacturers of supplies for enameling factories, report that the construction of their new plant is progressing rapidly. Contracts have been made for the necessary equipment, including gas engine, mills, transmission, furnaces, &c., and the plant is expected to be operating about December 10.

The recent purchase of a 400-acre tract of land at Cape May, N. J., by Henry Ford and James Couzens of the Ford Motor Company, has led to the erroneous report that they intended to erect an automobile plant on the property. The Ford Motor Company, Detroit, Mich., has no connection with the transaction and there is no intention on the part of the owners to use the property for a plant.

The Faeth Iron Company, Kansas City, Mo., has purchased a plot of ground, 111 x 250 ft., upon which it will erect in the spring buildings for its wholesale iron and steel and heavy hardware business. The investment, including ground, will be about \$150,000.

The Empire Shipbuilding Company, Buffalo, N. Y., has closed contract with the Empire Engineering Corporation, New York, for the construction of a large steel drill boat which the owner will equip with five air compression drills, to be used for blasting in connection with river and harbor improvement work.

The Youngstown Car Mfg. Company, Youngstown, Ohio, has secured a second order from the West Leechburg Steel Company, West Leechburg, Pa., for a large 100,000-lb. capacity billet car, and also a contract for the ash handling cars and track layout for the naval training station, United States Government, at North Chicago, Ill. The company is also building three large steel gable bottom mining cars for the Industrial Securities Company, New York, for use in its pyrites mines in Wisconsin.

The Iron and Metal Trades

Pig Iron Activity Subsiding.

Higher Prices in All Markets—Structural Business in November.

The Iron and Steel markets are quieting down. The season of the year does not favor such an expansion as seems to have been expected in some quarters and there has come in the influence of the tariff hearings, with the questions they raise as to the effect upon industrial undertakings of several months' discussion of new schedules.

Pig Iron, on which the activity of the past month has centered, is stronger in all markets, and a number of sellers have withdrawn from the market so far as concerns the second quarter of next year. The higher prices recently asked have also led some buyers to defer further purchases, and both sides seem willing to let events show the way, as more definite data come out on the adjustment of production to consumption. In the East further sales of Basic Pig Iron are reported, about 20,000 tons having been taken, for the most part at \$16.50 delivered in eastern Pennsylvania. Some sellers are now holding for \$17.

Foundry Iron has been less active, both East and West, with Northern Irons now held at from \$1 to \$1.50 a ton above the low point touched in the early fall buying. Foundries generally are carrying larger stocks, and some have increased their melt, notably the Malleable foundries. These have had a spurt of business from the car repair work which assumed large proportions last month.

In finished material the developments since the election have been rather meager in comparison with Pig Iron. Interest centers in Rails as the time approaches for placing next year's requirements. Several inquiries are up, but the railroads are moving slowly. In the past week a sale of 6500 tons has been made to the Soo Line, and it is expected that 31,000 tons needed by the Chicago & Northwestern will be placed at Chicago. A fanciful report concerning a 65,000-ton order placed abroad by the Louisville & Nashville after the rejection of domestic bids, has come out this week. No inquiry has yet been received from this road. Good buying of track supplies is reported at Pittsburgh and Chicago.

Structural contracts placed in November will exceed 100,000 tons, of which about 50 per cent. goes to the American Bridge Company, though in the year ending with October this company took only about 20 per cent. of the total business. Some surprise is caused by statistics showing more Steel structural work placed in the 12 months ending October 31 than in the preceding year. The largest contract of the past week was the People's Gas Light & Coke Company building in Chicago, 9500 tons. Boston awards amounted to 4200 tons and there has been a renewal of buying on the Pacific Coast, where imported Shapes have figured to some extent. Plates have shown some improvement, contributed to in the East by shipyard and car work.

There is increased activity at Tin Plate works and the Pacific canning interests have bought for the early months of 1909.

Cast Iron Pipe inquiry includes 12,000 tons for Havana, 10,000 tons for Chicago and 11 miles of Pipe for Haddonfield, N. J. Low priced Pipe contracts and the recent rise in Pig Iron are an occasion of discomfort in some quarters.

The Old Material market is under close scrutiny. The covering of short sales has been the cause of some advances, and there is little disposition on the part of the interests controlling the large accumulations of Scrap to sell freely on the present level.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Nov. 25, 1908.	Nov. 18, 1908.	Oct. 28, 1908.	Nov. 27, 1907.
PIG IRON , Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia.....	\$17.25	\$17.00	\$16.75	\$18.75
Foundry No. 2, Southern, Cincinnati.....	16.25	16.25	15.75	18.75
Foundry No. 2, Local, Chicago.....	17.00	17.00	16.50	19.25
Basic, delivered Eastern Pa.....	16.50	16.25	16.00	17.00
Basic, Valley Furnace.....	15.50	15.50	13.85	17.50
Bessemer, Pittsburgh.....	17.40	16.90	15.40	19.90
Gray Forge, Pittsburgh.....	15.15	15.15	14.40	18.90
Lake Superior Charcoal, Chicago	19.50	19.50	19.50	25.00

BILLETS, &c. , Per Gross Ton:				
Steel Billets, Pittsburgh.....	25.00	25.00	25.00	28.00
Forging Billets, Pittsburgh.....	27.00	27.00	27.00	30.00
Open Hearth Billets, Phila.....	26.20	26.20	26.20	30.00
Wire Rods, Pittsburgh.....	33.00	33.00	33.00	34.00
Steel Rails, Heavy, at mill.....	28.00	28.00	28.00	28.00

OLD MATERIAL , Per Gross Ton:				
Steel Rails, Melting, Chicago.....	15.50	15.25	14.50	13.75
Steel Rails, Melting, Phila.....	16.25	16.00	15.00	12.00
Iron Rails, Chicago.....	19.50	18.00	18.00	16.00
Iron Rails, Philadelphia.....	20.50	20.50	19.50	17.50
Car Wheels, Chicago.....	16.00	15.50	15.25	22.00
Car Wheels, Philadelphia.....	16.50	16.00	15.00	19.00
Heavy Steel Scrap, Pittsburgh.....	16.75	16.00	15.50	14.50
Heavy Steel Scrap, Chicago.....	15.00	15.00	14.00	12.00
Heavy Steel Scrap, Philadelphia	16.25	16.00	15.00	12.00

FINISHED IRON AND STEEL,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia.....	1.50	1.47	1.45	1.75
Common Iron Bars, Chicago.....	1.50	1.50	1.50	1.75
Common Iron Bars, Pittsburgh.....	1.50	1.40	1.40	1.60
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.76
Steel Bars, Pittsburgh.....	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York	1.76	1.76	1.76	1.86
Tank Plates, Pittsburgh.....	1.60	1.60	1.60	1.70
Beams, Tidewater, New York.....	1.76	1.76	1.76	1.86
Beams, Pittsburgh.....	1.60	1.60	1.60	1.70
Angles, Tidewater, New York.....	1.76	1.76	1.76	1.86
Angles, Pittsburgh.....	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	1.45	1.45	1.45	1.70
Skelp, Sheared Steel, Pittsburgh.	1.50	1.50	1.50	1.80

SHEETS, NAILS AND WIRE,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, Black, No. 28, Pittsburgh.	2.50	2.50	2.50	2.60
Wire Nails, Pittsburgh.....	1.95	1.95	1.95	2.05
Cut Nails, Pittsburgh.....	1.75	1.75	1.75	2.00
Barb Wire, Galv., Pittsburgh....	2.40	2.40	2.40	2.50

METALS , Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York.....	14.50	14.50	14.00	13.75
Electrolytic Copper, New York..	14.12½	14.25	13.50	13.62½
Spelter, New York.....	5.10	5.05	4.85	4.70
Spelter, St. Louis.....	4.95	4.90	4.70	4.60
Lead, New York.....	4.37½	4.42½	4.35	4.25
Lead, St. Louis.....	4.22½	4.30	4.20	4.10
Tin, New York.....	30.35	30.25	29.50	31.20
Antimony, Hallett, New York....	8.12½	8.12½	8.00	9.00
Nickel, New York.....	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York....	\$3.89	\$3.89	\$3.89	\$4.00

Chicago.

FISHER BUILDING, November 25, 1908.—(By Telegraph.)

As respects the Iron and Steel and allied industries, the situation is brightening as activities continue to expand. Last week brought out a good line of orders for Track Supplies from the railroads, in which were included 32,000 kegs of Spikes and Bolts, and to which have been added by a later sale 20,000 kegs of Spikes and 5000 kegs of Bolts, and there is a further large tonnage pending. No final closure of pending Heavy Rail contracts are reported, but the general volume of railroad business is increasing through gradual extension of new car orders, car repair work and material for general betterment. An aggregate of about 12,000 tons of Structural Material was included in contracts last week by fabricators, the principal lot being 9500 tons required by the People's Gas Light & Coke Company's Building. Having secured two orders for Car Axles aggregating 7500 tons, the American Bridge Company has started the forge department of its Chicago plant at full capacity. Both Iron and Steel Axles are included in the principal portion of this tonnage, conforming to the specifications of a road favoring Iron Axles. With the exception of the Light Rail mills, all of the finishing plants at the Illinois Steel Company's South Works are going this week. With 12 of the 26 Open Hearth furnaces in operation, preparations are being made for an early increase in Steel making capacity, and it is expected that all of the Open Hearth furnaces will be in service before long. Merchant Pipe and Tubes are lagging in demand, while Plates and Sheets exhibit more

activity with more regular maintenance of prices. The limited outcome of Old Material, coupled with the resolute holding of a large accumulation of stock in the hands of dealers, keeps prices moving upward as the demand increases. Scarcity in Melting Steel, Borings and Turnings enables sellers to command top prices.

Pig Iron.—Last week practically marked the termination of an active buying movement in Pig Iron, which had its beginning in the closing weeks of last month and reached its culmination in the week or 10 days following the election. Buying of Foundry Iron during this period became quite general and included mainly purchases covering first quarter requirements, with a fair proportion extending through the entire first half of next year. Most of the furnaces, both Northern and Southern, have entered orders for enough tonnage to carry them through the first three months of the coming year and are not disposed just now to extend commitments beyond that time. The prevailing sentiment among producers seems to be that prices will not recede below the level established by recent sales, and that there is a reasonable probability of securing higher prices later on for second quarter business. As a result of these conditions three of the leading Alabama interests have practically withdrawn from the market, either for the full first half or second quarter. These include the Alabama Consolidated Coal & Iron Company, which is not quoting on anything except November and December shipments, for which \$13, Birmingham, is asked; the Woodward Iron Company, which is not quoting on any forward tonnage, and the Sloss-Sheffield Steel & Iron Company, on whose Iron only deliveries through to the end of first quarter at a price of \$13, Birmingham, are being offered. The Tennessee Coal, Iron & Railroad Company is also out of the market, temporarily at least. The Republic Iron & Steel Company is still booking business through the entire second quarter at \$13, Birmingham. Local Northern furnaces are declining to quote on second quarter business except at unacceptable prices, and are asking \$17.50, at furnace, for first quarter. A good deal of tonnage was transferred last week in lots of 500 to 2000 tons, the transactions generally representing the closure of pending business at figures ruling prior to the advance. One lot of 2000 tons of Northern Iron was taken by a northern Indiana manufacturer at \$16.50, delivered; a Michigan threshing machine concern purchased 2000 tons on a basis of about \$16.50, Chicago, and another lot of 2000 tons, half Northern and half Southern, was placed with a Michigan stove company. The largest transaction in the local market was for 2500 tons, taken by the Western Electric Company, which included some special analysis Iron, the order being divided between Northern and Southern sellers. A Milwaukee machinery builder is out with an inquiry for 5000 to 10,000 tons, on which deliveries for a year ahead are wanted, and for this reason it is receiving scant attention. Apparently the market has passed into a waiting stage, and the future level of values will depend upon the increase of consumption, as compared with production. The following quotations are for November and December delivery, f.o.b. Chicago:

Lake Superior Charcoal.....	\$19.50 to \$20.00
Northern Coke Foundry, No. 1.....	17.50 to 18.00
Northern Coke Foundry, No. 2.....	17.00 to 17.50
Northern Coke Foundry, No. 3.....	16.50 to 17.00
Northern Scotch, No. 1.....	18.00 to 18.50
Southern Coke, No. 1.....	17.85 to 18.35
Southern Coke, No. 2.....	17.35 to 17.85
Southern Coke, No. 3.....	16.85 to 17.35
Southern Coke, No. 4.....	16.35 to 16.85
Southern Coke, No. 1 Soft.....	17.85 to 18.35
Southern Coke, No. 2 Soft.....	17.35 to 17.85
Southern Gray Forge.....	15.85 to 16.35
Southern Mottled.....	15.60 to 16.10
Malleable Bessemer.....	17.00 to 17.50
Standard Bessemer.....	17.90 to 18.40
Jackson Co. and Kentucky Silvery, 6 %	19.90 to 20.40
Jackson Co. and Kentucky Silvery, 8 %	20.90 to 21.40
Jackson Co. and Kentucky Silvery, 10 %	22.90 to 23.40

(By Mail.)

Billets and Rods.—Though no lots of exceptionally large tonnage were included in last week's orders for Forging Billets, the demand seems to be growing more general. The principal transaction reported was a lot of 500 tons placed by a Milwaukee machinery builder. Some smaller lots were included in the week's sales, the aggregate of which, though small, shows some improvement. Business in Axle Billets continues to grow at a moderate pace, corresponding with the advance in carbuilding. Orders from carbuilders entered by the American Bridge Company aggregate 6800 tons of both Iron and Steel Axles. The regular price of \$28.50, Chicago, for Forging Billets is, we are advised, being maintained. Wire Rod specifications are coming forward at a good rate, together with a fair amount of new business. Prices are firm and unchanged, as follows: Bessemer, \$33; Basic, \$34; Chain, \$33, all at Pittsburgh.

Rails and Track Supplies.—Negotiations concerning specifications have retarded the closure of some of the Rail tonnage now pending. About 31,000 tons required by the Chicago & Northwestern will probably be supplied by the leading interest, which has also closed with the Manistee &

Northeastern Railroad for its requirements, the amount of which is not definitely stated, also 6000 tons for the Soo Line. Some heavy contracts for Spikes and Bolts have been placed by Western lines, and some of even larger tonnage will probably be entered by the mills within a few days. Included in last week's business were 21,000 kegs of Spikes and 8000 kegs of Bolts, from a leading Western system, which were secured by the Illinois Steel Company, together with 3000 kegs from the Wisconsin Central. This business will probably be supplemented the present week with a contract from another road for 150,000 kegs. The Joliet Bolt mills are now running full, though specifications for Spikes are, as yet, insufficient to occupy the full capacity of this department; betterment in this respect will depend upon how quickly specifications follow the recent contracts placed. The general outlook in Track Supplies is distinctly encouraging as to future business. Business in Light Rails is gradually increasing. An order of 1900 tons entered last week by the Illinois Steel Company brings the total sales for November, up to this time, to 6000 tons. Track Bolt prices have firmed up slightly, while Light Rails are unchanged, the regular price being shaded about \$1 a ton. We quote as follows: Angle Bars, accompanying Rail orders, 1908 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.15c. to 2.25c., base, Square Nuts, and 2.30c. to 2.40c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c., above mill prices. Light Rails, 25 to 45 lb., \$26; 20-lb., \$27; 16-lb., \$28; 12-lb., \$29. Standard Sections, Bessemer, \$28; Open Hearth, \$30, on lots of 500 tons and over; on smaller lots, \$2 a ton extra.

Structural Material.—Of the Structural Material included in the several local projects of importance now pending, a contract for the fabrication of 9500 tons for the People's Gas Light & Coke Company was the only one awarded; this went to the Morava Construction Company, and the plain material will be furnished by the Bethlehem Steel Company. Respecting the tonnage required for the City Hall, the Hart Shaffner & Marx Building, the Denver Viaduct and others heretofore noted, no final action has been taken. The 950 tons for the St. Paul Bridge & Terminal Company, St. Paul, Minn., will be fabricated by the American Bridge Company, which also booked a number of small orders of 100 tons and under, aggregating a little over 1000 tons. The Stewart Building, San Francisco, calling for 300 tons was awarded to the Schroeder Iron Works of that city, and 500 tons for the Call Building was taken by the Ralston Iron Works. The railroads are beginning to manifest interest in their bridge material requirements for the coming year, and as a result there are several inquiries of this kind in the market which altogether amount to 15,000 tons or more; one of these, 8500 tons, is from the Northern Pacific. Prices from store are 1.95c. to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c.

Plates.—Plate business is gradually increasing, though progress in this direction is slow, the principal gain being in Universal Plates required for building and other structural work. The general run of orders for Sheared Plates is slightly better, though jobbers and consumers are not buying in greater quantities than are required for immediate needs. Both the Universal and Sheared Plate mills at the South Works are this week in operation. We quote mill shipments as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier, up to 72 in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets.—The market exhibits no features of special interest, save that in a general way the situation is gradually improving. Both jobbers and manufacturers are inclined to expand their orders to cover prospective needs a little further ahead, but this movement is still controlled by a safe degree of conservatism. Galvanized Sheets hold the lead in activity, with a fair demand for Light Black Sheets; the heavier gauges in Blue Annealed, reflecting the prevailing dullness in heavy construction, are less active. Prices are firmer, and it is reported there is little, if any, deviation from the regular schedule. The Sheet department of the Inland Steel Company is now operating at between 75 and 80 per cent. of its capacity. Jobbers report a fair movement from stock, with prices fairly steady at current quotations. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16,

2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 and 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.15c.; No. 12, 2.20c.; No. 14, 2.25c.; No. 16, 2.35c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—Business in Steel Bars continues quite satisfactory, the principal producer being in receipt of specifications sufficient to keep its mills running practically full. The greater part of consumers' requirements is covered by contracts placed some time ago, and the proportion of new business being entered is, therefore, small. Owing to the advance in Scrap, Hard Steel Angles and Bars rolled from Steel Scrap and old Steel Rails have firmed up, and this material is now quoted at 1.50c. for Bars, with the usual extra for Angles and Shapes. Due to the same cause, Iron Bars are firm at the regular prices, with some talk of an advance. Local interests are of the opinion, however, that such a step will not be taken unless a further increase in the value of Old Material should make it absolutely necessary. Three Western mills of the Republic Iron & Steel Company are going this week—the Sylvan, at Moline, running full; the Tudor Works, at East St. Louis, with three mills on, and the Chicago Heights plant, with two mills on. Quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras; Iron Bars, 1.50c.; Hoops, No. 13, and lighter, 1.98c., full extra, Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extra, Steel Bar card; Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron, 2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras.

Merchant Pipe.—In view of the near approach of cold weather, which will interfere with outside work, the prospect of an increased consumption of Merchant Pipe is, for the time being, naturally unpromising. Under the circumstances, there is no special inducement for jobbers to increase their stocks, and they are consequently ordering only what is needed to supply the current demand. There is, in fact, no material change in the situation, the movement being governed by the conditions that have ruled the market for some time. The following mill discounts are quoted: Black Pipe, $\frac{3}{4}$ to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized, $\frac{3}{4}$ to 6 in., 63.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, $\frac{3}{4}$ to 6 in. About three points above these prices is asked for Iron Pipe.

Boiler Tubes.—The demand for Locomotive Tubes is sustained by the moderate buying of railroads for repair work. Occasional carload orders for Merchant Tubes represent the extent of activities in this line as far as the mills are concerned. Jobbers are supplying the immediate needs of the boiler shops by shipments from stock. Mill quotations for future delivery, on the base sizes, are as follows: $2\frac{3}{4}$ to $4\frac{1}{4}$ in., inclusive, Steel Tubes, 63.2; Iron, 50.2; Seamless, 50.2; $2\frac{1}{2}$ in. and smaller, and lengths over 18 ft., and $2\frac{1}{2}$ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to $1\frac{1}{2}$ in.	35	35	35
$1\frac{3}{4}$ to $2\frac{1}{4}$ in.	50	35	35
$2\frac{1}{2}$ in.	52 $\frac{1}{2}$	35	35
$2\frac{3}{4}$ to 5 in.	60	47 $\frac{1}{2}$	47 $\frac{1}{2}$
6 in. and larger.	50	35	..

Merchant Steel.—Some improvement is noted in the demand for Shafting, together with less irregularity in prices. The regular discount of 57 per cent. heretofore applicable to lots of 100 tons and over is now made to include car lots or over. Specifications for Merchant Steel are coming to the mills in good volume, and jobbers are finding it necessary to stock up a little further ahead in order to supply promptly the needs of their customers. We quote as follows: Planished or Smooth Finished Tire Steel, 1.78c.; Iron Finish, up to $1\frac{1}{2}$ x $\frac{1}{2}$ in., 1.73c., base, Steel card; Iron Finish, $1\frac{1}{2}$ x $\frac{1}{2}$ in. and larger, 1.58c., base, Tire card; Channels for solid Rubber Tires, $\frac{3}{4}$ to 1 in., 2.08c., and $1\frac{1}{4}$ in. and larger, 1.98c.; Smooth Finished Machinery Steel, 2.08c.; Flat Sleigh Shoe, 1.63c.; Concave and Convex Sleigh Shoe, 1.83c.; Cutter Shoe, 2.05c.; Toe Calk Steel, 2.13c.; Railroad Spring, 1.98c.; Crucible Tool Steel, $7\frac{1}{4}$ c. to 8c., and still higher prices are asked on special grades. Cold Rolled Shafting in car lots and over, 57 per cent off; in less than car lots, 52 per cent. off, with carload freight allowed within base territory.

Metals.—The failure of Copper to hold the gains made in the recent advance has reassured consumers, who hesitated to contract ahead during that movement, and, as a result, what buying there is now is uninfluenced by speculative tendencies. Consumption has increased somewhat and there are more carload buyers in the market for Metal to provide for actual present needs. There were inquiries for

one to two car lots of Copper last week from several manufacturers. Spelter has firmed up a point or two under a growing demand, but Lead is only fairly active. Old Metals have declined from $\frac{1}{4}$ c. to $\frac{1}{2}$ c., in sympathy with the yielding of values in Ingot Metal. Quotations are as follows: Casting Copper, $14\frac{1}{4}$ c.; Lake, $14\frac{1}{2}$ c. to $14\frac{3}{4}$ c., in car lots, for prompt shipment; small lots, $\frac{1}{4}$ c. to $\frac{3}{8}$ c. higher; Pig Tin, car lots, $32\frac{1}{2}$ c.; small lots, $34\frac{1}{2}$ c.; Lead, Desilverized, 4.55c. to 4.65c., for 50-ton lots; Corroding, 4.80c. to 4.90c., for 50-ton lots; in car lots, $2\frac{1}{4}$ c. per 100 lb. higher; Spelter, 5.10c.; Cookson's Antimony, $10\frac{1}{2}$ c., and other grades, 9 $\frac{1}{4}$ c. to $10\frac{1}{4}$ c.; Sheet Zinc is \$7, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, $13\frac{1}{4}$ c.; Heavy Copper, 13c.; Copper Bottoms, $11\frac{1}{4}$ c.; Copper Clips, 13c.; Red Brass, 12c.; Yellow Brass, $9\frac{1}{2}$ c.; Light Brass, $6\frac{1}{4}$ c.; Lead Pipe, 4.35c.; Zinc, $3\frac{3}{4}$ c.; Pewter, No. 1, 21c.; Tin Foil, 23c.; Block Tin Pipe, 26c.

Cast Iron Pipe.—The letting of the 3500 tons advertised by Detroit for last week was postponed until this week, when it is expected the contract will be awarded. Bids will be taken by this city on another lot of 10,000 tons, which is scheduled for award on December 21. The general demand is rather light, and the majority of inquiries concerning deliveries beyond the first of the year are seemingly put out as feelers to test the trend of prices. We quote nominally per ton, Chicago, as follows: Water Pipe, 4 in., \$27; 6 to 12 in., \$26; 16 in. and up, \$25, with \$1 extra for Gas Pipe.

Old Material.—Prices continue to advance, and nearly all grades have moved up this week from 50c. to \$1.50 a ton. The peculiar feature of the situation is the marked difference that exists between the prices of material on track and those of tonnage for contract delivery. Dealers are holding resolutely to stock in yards, and but little stuff is coming out from this source. Thus, while No. 1 Railroad Wrought was bought on track last week at \$14.50, no lots of considerable size, not subject to immediate transfer, are being offered by dealers at better than \$14.75 to \$15, even \$15.25 was paid by a dealer for 500 tons on a railroad list. Steel Scrap holds especially strong, and its position is not weakened by the fact that indications point to the impending purchase of 5000 to 10,000 tons by a heavy user of Melting Steel. Heavy drafts on this market for a large amount of Borings and Turnings for the Pittsburgh District has put prices on these grades up 75c. a ton; and no great tonnage seems to be available at this advance. Re-rolling Rails on the Great Northern list went for \$17.75, and sales of Old Car Wheels in lots of 250 to 300 tons were made at \$16.25. The only list thus far reported for closure this week is one of 3000 tons from the Chicago, Burlington & Quincy Railroad, in which there are 900 tons of Wrought. The following prices are per gross ton, f.o.b. Chicago:

Old Iron Rails.	\$19.50 to \$20.00
Old Steel Rails, re-rolling.	17.25 to 17.75
Old Steel Rails, less than 3 ft.	15.50 to 16.00
Relaying Rails, standard sections, subject to inspection.	22.50 to 23.50
Old Car Wheels.	16.00 to 16.50
Heavy Melting Steel Scrap.	15.00 to 15.50
Frogs, Switches and Guards, cut apart.	15.00 to 15.50
Mixed Steel.	12.25 to 12.75

The following quotations are per net ton:

Iron Fish Plates.	\$17.50 to \$18.00
Iron Car Axles.	20.50 to 21.00
Steel Car Axles.	18.50 to 19.00
No. 1 Railroad Wrought.	15.00 to 15.50
No. 2 Railroad Wrought.	14.00 to 14.50
Springs, Knuckles and Couplings.	14.50 to 15.00
Locomotive Tires, smooth.	14.75 to 15.25
No. 1 Dealers' Forge.	11.75 to 12.25
Mixed Bushing.	9.50 to 10.00
Iron Axle Turnings.	9.00 to 9.50
Soft Steel Axle Turnings.	9.00 to 9.50
Machine Shop Turnings.	9.00 to 9.50
Cast Borings.	8.00 to 8.50
Mixed Borings, &c.	8.00 to 8.50
No. 1 Mill.	9.00 to 9.50
No. 2 Mill.	8.00 to 8.50
No. 1 Boilers, cut to Sheets and Rings.	10.50 to 11.00
No. 1 Cast Scrap.	14.00 to 14.50
Stove Plate and Light Cast Scrap.	12.25 to 12.75
Railroad Malleable.	14.00 to 14.50
Agricultural Malleable.	11.75 to 12.25
Pipes and Flues.	11.00 to 11.50

Birmingham.

BIRMINGHAM, ALA., November 23, 1908.

Pig Iron.—The brisk demand, the limited tonnage unsold for first quarter delivery, and the tendency toward an advance beyond that time warrant the assertion that at no time since the panic has the market been in better condition. Two interests here are now asking \$13.50, Birmingham, for first quarter Iron, and while no important sales have been reported at this price, there have been quite a few nice sales of special analysis Iron at \$13.50 and \$14, Birmingham. The producers other than the two mentioned are still asking \$13, Birmingham, for their first quarter Iron, and sales at this price are still being made; yet there is considerable caution being exercised in these sales, for most of the producers are beginning to figure on their probable make during the first quarter and do not seem at all anxious to sell. The demand for Charcoal Iron continues brisk and pro-

ducers anticipate an advance in price. This Iron can still be bought, however, at \$19.50, at furnace, for Nos. 1 and 2, and \$20 for the chilling grades. There has been no lack of inquiries during the week, and the fact that a large number of these inquiries are for Iron to be delivered over the year 1909 is very significant. So far as known, however, no quotations are being made for this delivery, producers showing a decided disinclination to do so. This feature presages well for the market next year, as both producer and consumer seem to expect an advance. The prospects for a steady and conservative advance in the market are also good. The action of leading producers in maintaining the price of \$13, Birmingham, for first quarter delivery, instead of advancing—with the evident intention of keeping the market steady—is expected to be productive of good results. The considerable tonnage of Iron in the hands of speculators has had little effect on the market. Some of this Iron is being sold, but in no instance are sales reported below the market price.

Cast Iron Pipe.—No contracts of any importance have been reported placed this week. Small orders continue to come in, however, and the market is considered fairly active. The outlook for new business is good, one of the most encouraging features being the inquiries received from small towns, which have been figuring on new work for some time, but have been unable to close contracts owing to inability to float bonds. Recent telegraphic advices to local manufacturers indicate that more success is being met with now; consequently prospects for business from these towns are good. The report made some time ago of the rumored contract for 40,000 tons to be let by the city of San Francisco, Cal., has been verified, but it seems the tonnage is to be divided into several small lots of a few thousand tons each and ordered out as needed. We quote as follows for Water Pipe, f.o.b. cars here, per net ton: 4 to 6 in., \$24; 8 to 12 in., \$23; over 12 in., average \$22, with \$1 per ton extra for Gas Pipe.

Old Material.—There has been some increase in consumption, and the market is considered stronger. The demand continues fairly active, Light Cast being especially asked for. Owing to the expected resumption of operations by most of the mills of the district the feeling among dealers is very optimistic. We quote dealers' asking prices as follows, per gross ton, f.o.b. cars here:

Old Iron Rails.....	\$14.50 to \$15.00
Old Iron Axles.....	16.00 to 17.00
Old Steel Axles.....	13.00 to 13.50
No. 1 Railroad Wrought.....	13.50 to 14.00
No. 2 Railroad Wrought.....	10.50 to 11.00
No. 1 Country Wrought.....	11.00 to 11.50
No. 2 Country Wrought.....	9.50 to 10.00
No. 1 Machinery.....	11.00 to 11.50
No. 1 Steel.....	10.00 to 10.50
Stove Plates and Light Cast.....	9.50 to 10.00
Cast Borings.....	5.00 to 5.50

St. Louis.

ST. LOUIS, November 23, 1908.

Inquiry among the leading houses in various lines of business indicates that the volume of trade is gradually expanding. That the improvement has been slow is conceded, but this is regarded as a favorable feature, especially as the prospect warrants the belief that there will be a further expansion, except where a temporary seasonable dullness occurs in certain lines. As before noted, there is a revival of buying of all kinds of material on a more liberal scale on the part of railroads and this is growing more pronounced. Interest in the Pig Iron market continues unabated, though the volume of sales is not as large as for the previous week.

Coke.—In addition to the diversion of attention to the Pig Iron situation, there has been to some extent a readjustment of contracts which has helped make a quiet market so far as actual buying is concerned, but the leading sales agencies report a fair volume of inquiry. One house reports that an offer of \$2.25 at oven, Connellsville, for a round lot of 72-hr. standard Foundry, shipment over first half of 1909, was declined. The same house states that one of its producers has advanced the price to \$2.40 on delivery after January 1. There is a good inquiry for Furnace Coke. We quote as follows: 72-hr. Foundry, \$2.25 to \$2.50, at oven, Connellsville; Furnace, \$1.85 to \$2.10, at oven, Connellsville.

Pig Iron.—With most of the sales agencies the feature of the week consists in hearing from a large number of buyers for medium to small lots of Pig Iron, and in many cases they are inquiring for shipment over the first quarter of 1909, though most of these buyers usually purchase only for immediate shipment. Some of the Southern furnaces have advanced their price 50c. per ton and several have withdrawn from the market. One of the leading sellers states that only two furnaces of those he represents will take business. This house reports the sale of a round lot of No. 2 Foundry at \$13.50, Birmingham, for shipment over first half of 1909. Total sales for the week were 1400 tons. Another house reports sales of 5000 tons at \$13, Birmingham, for shipment over first quarter of 1909, with inquiries pending

for about the same quantity. There is some inquiry for 1909 shipment indicating a disposition for speculative buying. The sale of 400 tons of No. 1 Foundry at \$13.75, Birmingham, for shipment over the first quarter of 1909, is reported. De Camp Bros. & Yule report a sale of 4500 tons of Basic Iron for shipment over the first quarter of 1909, also the sale this week of 3000 tons Basic Iron for same shipment. Both lots are for delivery into St. Louis territory for local consumption. We quote No. 2 Foundry for shipment over the first quarter at \$13, and for first half of 1909 at \$13.50, Birmingham. Ohio Malleable Bessemer is held at \$16. Ironton Northern Silvery, 8 per cent. silicon, is offered at \$18.50 to \$19, Jackson.

Finished Iron and Steel.—The principal sellers of Structural Material report a fair demand from fabricators and state there are some inquiries coming in which indicate that large deals are pending. The inquiry for Standard Rails is more general and is coming from the South and Southwest. Light Rails are in increased demand. The leading seller reports the sale of 1000 tons, mainly to lumber interests. Bolts and Nuts have advanced and are in demand. Bar Iron is higher. Bar Steel shows some improvement in inquiry. For Track Material the demand is very good. The general inquiry for Bars and Bar products indicates increasing interest.

Old Material.—While inquiries from rolling mills and foundries for Steel grades are quite numerous, the sales for the week to these interests fall under those of last week. The demand from dealers continues and it would appear they expect the market to do better. The only railroad offering this week is the Chicago, Burlington & Quincy, which is out with a list of 3300 tons. One of the leading houses reports sales for the week, 2000 tons. Another dealer placed 1500 tons and a third marketed 500 tons. Relaying Rails continued in good demand and the price is firm. Offerings by the railroads are very light, while stocks are moderate and in strong hands. We quote as follows, f.o.b. St. Louis, per gross ton:

Old Iron Rails.....	\$17.00 to \$17.50
Old Steel Rails, rerolling.....	15.50 to 16.00
Old Steel Rails, less than 3 ft.....	14.25 to 14.75
Relaying Rails, standard sections, subject to inspection.....	24.00 to 24.50
Old Car Wheels.....	15.50 to 16.00
Heavy Melting Steel Scrap.....	14.25 to 14.75
Frogs, Switches and Guards, cut apart.....	14.25 to 14.75
Mixed Steel.....	10.25 to 10.75

The following prices are per net ton:

Iron Fish Plates.....	\$16.00 to \$16.50
Iron Car Axles.....	19.50 to 20.00
No. 1 Railroad Wrought.....	14.50 to 15.00
No. 2 Railroad Wrought.....	13.50 to 14.00
Railway Springs.....	13.00 to 13.50
Locomotive Tires, smooth.....	13.50 to 14.00
No. 1 Dealers' Forge.....	11.50 to 12.00
Mixed Borings, &c.....	6.50 to 7.00
Machine Shop Turnings.....	9.00 to 9.50
No. 1 Rollers cut to Sheets and Rings.....	9.50 to 10.00
No. 1 Cast Scrap.....	13.50 to 14.00
Railroad Malleable.....	12.00 to 12.50
Agricultural Malleable.....	10.50 to 11.00
Pipes and Flues.....	10.00 to 10.50
Railroad Sheet Scrap.....	10.50 to 11.00

Lead, Spelter, Etc.—While there is some speculative demand, the market for Pig Lead is quiet at 4.30c. bid and 4.35c. asked. No sales are reported. As there is a steady demand for Pipe and White Lead, holders are firm in their views for Pig Lead. Lead Ore is lower and dull at \$27.50 per 1000 lb., Joplin basis. Spelter continues in good demand at 5c. bid, but no sales are reported. Zinc Ore is strong and in demand. We quote \$40 per ton Joplin basis. The surplus that has been carried is rapidly growing less and if the demand continues there will likely be nothing of consequence carried over into the new year. Indications are for a further advance next week. More mills are starting up and the demand from Brass and Galvanizing interests is still quite satisfactory. Tin is higher and demand better. Antimony shows no change for the week; demand fair. Copper is about steady, with good demand.

Architect Theo. C. Link announces that the plans for the new warehouse for the Roberts, Johnson & Rand Shoe Company will be ready next week. The structure will be 10 stories, and will completely cover a lot 107 x 133 ft. The outside material will be light limestone relieved by massive granite trimmings. Skeleton steel framework will be used and about 700 tons will be required.

The American Car & Foundry Company has been awarded the contract for building 300 ventilated fruit cars and 200 stock cars for the San Antonio & Aransas Pass Railroad.

The St. Louis Car Wheel Company states that there has been a marked improvement in the demand since November 1. The past week has shown a larger gain than at any time during the year. The demand for Car Wheels is coming from both steam and electric roads.

The St. Louis Screw Company finds a moderate increase in the demand for Screws, Bolts, &c.

The Standard Railway Equipment Company reports the demand for railroad repair work holding well, and it is also

in receipt of an order this week for roofs for 700 new cars.

The More-Jones Brass & Metal Company reports a better demand from railroads and the general trade. The improvement, though slow, has been steady.

The St. Louis Rail & Equipment Company finds a good demand for Relaying Rails from both steam and electric railroads—principally from the Southwest. There is also a good demand for track material.

The Buda Foundry & Mfg. Company states that the demand for its products by the southwestern railroads is steadily developing in volume.

Philadelphia.

PHILADELPHIA, PA., November 24, 1908.

While buying in the Iron and Steel markets continues active, the tonnage taken has not been as large as that booked the previous week or two. The heavy consumers have covered to some extent and further buying has been retarded by the fact that a number of producers have withdrawn from the market, refusing to quote for extended forward delivery, or, as in the case of some sellers of Pig Iron, named higher prices, and buyers hold off, waiting to see what will develop in the near future. The business taken during the week has been of a more natural character, the speculative appearance which the market had for a long time being less in evidence. Pig Iron sales again reach a good aggregate. One fair lot of Basic Iron was taken, but in the Foundry grades the individual tonnages were not heavy, although the total was generally satisfactory to sellers, who are not anxious to book large orders for forward deliveries. Finished materials on the whole show increasing activity; the quantities booked were not as large as those taken the previous week, but the volume is steadily and slowly increasing. The business under consideration is large, some fair boat and car specifications are being figured on and more activity is shown by locomotive builders. The railroads are also reported to be placing business with a trifle more freedom. Old Material is stronger, and prices on the leading grades again show an advance, but transactions have been largely between dealers.

Pig Iron.—The market has quieted down, there being less disposition shown on the part of buyers to get under cover. This condition has, no doubt, been brought about by the sellers, who practically control the situation in this territory, and who are maintaining a very strong front. A number of producers have withdrawn from the market as far as business for the next three or four months is concerned, having sold their output for that time, and are not anxious to quote for further extended deliveries. Stocks on furnace banks are very low and producers are not anxious to put in additional producing capacity at the present level, although several are getting very close to the point when they will have to do so to meet the demands of their customers. Prices show an advancing tendency, sales being made, in many instances, at the top of the market, and there seems to be very little cheap Iron about. Those who were low priced sellers are in some cases the high priced sellers to-day. While the bulk of the orders taken are still confined to prompt and first quarter of next year delivery, some little business for the first half and second quarter has been done. One of the Steel mills in this district bought during the week 13,500 tons of Basic for second quarter shipment, the delivered price ranging from \$16.50 to \$16.60. Sellers of Basic, however, are now very firm, some holding flatly at \$17 for second quarter, and \$16.75 to \$17, delivered, for the first half. A comparatively large volume of business has been done in the Foundry grades, but the individual tonnages have not been large, in a few instances only having exceeded 1000 tons, the bulk of the business being from regular customers, who buy for monthly requirements. From 50 to 500 tons represent the average run of business, and while No. 2 X Foundry in some few instances has been sold at \$17, delivered, the greater share was done at 25c. to 50c. advance, and at this time there is practically no \$17 Standard No. 2 X Foundry to be had, except it might be to a favored customer. Virginia Foundry Irons continue strong. Several producers are sold up for the next 90 days, but others have been taking a comparatively good tonnage, the most important sale being one of 1200 tons of high grade Iron to a local consumer. For strictly first quarter delivery prices are a shade higher, \$17.25 to \$17.50 being named for Virginia No. 2 X Foundry delivered in this territory. A sale of 1500 tons of Virginia Basic at \$13.50, at furnace, equal to \$16.50, delivered, for second quarter, to an Eastern Steel mill, is also to be noted. Southern Iron has not been very active, but prices are firm at \$13, Birmingham, for No. 2 Foundry, and some sellers will not accept business for the first quarter on this basis, asking an advance of 50c. a ton for that grade. There has been little done in Forge Iron, which is scarce. Prices for this grade are strong, and it is not believed that \$15.75 can be bettered in this territory, while in some few cases the equivalent of \$16, delivered, has been done by local sellers. There is a small demand for Low Phosphorus Iron, but no

sales have been reported. Sellers are now maintaining prices on this grade more strongly, and \$21, delivered, is pretty close to the bottom. We learn of no shading of current quotations, which for delivery in buyers' yards, eastern Pennsylvania and nearby territory, range about as follows either for prompt deliveries or extending through the first quarter of next year:

Eastern Pennsylvania, No. 2 X Foundry.....	\$17.25 to \$17.50
Eastern Pennsylvania, No. 2 Plain.....	16.75 to 17.00
Virginia, No. 2 X Foundry.....	17.25 to 17.50
Virginia, No. 2 Plain.....	17.00 to 17.25
Gray Forge.....	15.75 to 16.00
Basic.....	16.50 to 17.00
Low Phosphorus.....	21.00 to 21.50

Ferromanganese.—The market is a rather difficult one to quote. There is still apparently a wide range in prices. Some sellers hold firmly at about \$46, Baltimore, for deliveries during the first half of next year and get no business; others, however, are willing to sell at lower figures. One lot of 600 tons was sold yesterday, we understand, at something under \$44, Baltimore, and quotations have been made on small lots for fairly prompt shipment at \$44.50 to \$45, Baltimore. Some fair inquiry for next year's delivery is reported, but few sales were made during the week.

Plates.—A fair volume of business continues to come out, but the aggregate has not been as large as that taken the previous week. The business before the trade, however, is quite large, including some 2000 tons of Plates for cars for the Delaware, Lackawanna & Western Railroad. Bids for boats for the Isthmian Canal, requiring some 3000 tons of Plates, will be opened to-day, while the New York Central Railroad has placed orders for four large car floats with one of the local shipyards. General orders are reported to be increasing in size, and the outlook is considered favorable. Prices are being fully maintained, and for delivery in this territory range as follows:

	Carloads, carload, Cents.	Parts, Cents.
Tank, Bridge and Boat Steel.....	1.75	1.80
Flange or Boiler Steel.....	1.85	1.95
Commercial Firebox.....	1.95	2.00
Marine.....	2.15	2.20
Locomotive Firebox Steel.....	2.25	2.30

The above are base prices for $\frac{3}{4}$ -in. and heavier. The following extras apply:

	Extra per 100 lb.
3-16-in. thick.....	\$0.10
Nos. 7 and 8, B. W. G.....	.15
No. 9, B. W. G.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00

Steel Billets.—A moderate volume of orders continues to be received by local mills. Individual tonnages, however, are still small, and although there is considerable inquiry for Steel to cover future requirements, no business of any size has been placed. Orders are largely for prompt shipment, the aggregate enabling mills to keep about on an even basis. For delivery in this territory Ordinary Rolling Billets are quoted at \$26.20, with Forging Billets \$28.20, subject to the usual extras for high carbons and special sizes.

Structural Material.—No heavy contracts have been placed, the business transacted being of a rather miscellaneous character. The trade is encouraged, however, by the volume of work now under consideration from car and ship builders, as well as from the building trades, although not much heavy business of the latter class of work has developed. Prices are firm and unchanged, and for delivery in this territory range from 1.75c. to 1.90c., according to specification.

Sheets.—But little increase in the volume of business is to be noted. Buyers still hesitate when it comes to placing contracts, notwithstanding the fact that there has been considerable inquiry in this respect. Current orders, however, which are largely for prompt shipment, enable mills to operate at about full capacity, although but few have much booked ahead. Quotations are unchanged, the following range being named for mill shipment, a tenth extra being added for small lots: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—An upward tendency in the price of Refined Iron Bars is to be noted. With the steadily advancing price of crude materials, makers have found it necessary to advance their prices, and in some cases they are now on a parity with Steel Bars. There is a fair volume of orders coming out, made up mostly of small business, and some sellers who have been holding at 1.40c. have advanced to 1.45c., at Eastern mill. For deliveries in this territory 1.50c. to 1.55c. is named for Refined Iron Bars, 1.55c. for Steel Bars and 1.50c. for Rolled Bars.

Coke.—The market continues strong, and a fair volume of business has been transacted. Some sellers, particularly those handling the better grades of Coke, are very firm on prices for forward delivery, and several are practically out of the market. Foundry Coke for delivery extending into the first quarter of next year is quoted at \$2.25 to \$2.50, at

oven, with Furnace Coke \$1.65 to \$2, at oven, dependent on quantity and delivery. For delivery in this territory quotations range about as follows:

Connellsville Furnace Coke.....	\$3.75 to \$4.00
Foundry Coke.....	4.25 to 4.50
Mountain Furnace Coke.....	3.35 to 3.60
Foundry Coke.....	3.85 to 4.10

Old Material.—The market continues strong, and a moderate amount of business has been done, but transactions have been largely between dealers, who will pay more than the mills for some grades, particularly Heavy Melting Steel. The mills are taking tonnage only when they can get material comparatively cheap. In one instance a lot of 1000 tons of Heavy Melting Steel was taken at \$16, delivered, full 50c. under what dealers will pay to-day. Steel Scrap is in pretty strong hands, and will likely go higher unless some one is forced to sell. Light sales have advanced prices of nearly all the leading grades of Old Material, and quotations for delivery in buyers' yards in eastern Pennsylvania and nearby territory, while to a large extent nominal, range about as follows:

No. 1 Steel Scrap and Crops.....	\$16.25 to \$17.00
Low Phosphorus.....	18.75 to 19.25
Old Steel Axles.....	21.75 to 22.25
Old Iron Axles.....	23.50 to 24.00
Old Iron Rails.....	20.50 to 21.00
Old Car Wheels.....	16.50 to 17.00
Choice No. 1 R. R. Wrought.....	19.75 to 20.25
Machinery Cast.....	16.00 to 16.50
Railroad Malleable.....	15.75 to 16.25
Wrought Iron Pipe.....	15.25 to 15.75
New Bundled Sheets.....	14.50 to 15.00
No. 1 Forge Fire Scrap.....	13.50 to 14.00
No. 2 Light Iron.....	10.00 to 10.50
Wrought Turnings.....	13.25 to 13.75
Stove Plate.....	13.25 to 13.75
Cast Borings.....	12.25 to 12.75
Grate Bars.....	14.25 to 14.75

Pittsburgh.

PARK BUILDING, November 25, 1908.—(By Telegraph.)

Pig Iron.—Some fairly large inquiries are in the market, but consumers are showing less anxiety to cover future requirements than they did immediately after the election. Some pretty heavy stocks of Pig Iron are piled up in the furnace yards, and, with the recent heavy output, it would seem that it will take an extraordinary demand to cause prices to advance any further, especially during the winter months. At the same time the market is firm, and prices are probably as strong as a week ago. There is very little inquiry for Bessemer Iron, but the market is firm for delivery through first quarter on the basis of about \$16.50, Valley furnace, or \$17.40, Pittsburgh. Malleable Bessemer is about \$16 for delivery through first quarter, and Basic \$15.50 for first quarter, both at Valley furnace. The Westinghouse Electric & Mfg. Company has bought some No. 2 Foundry Iron for second quarter delivery at a price reported to be slightly under \$15.50, Valley furnace. We quote No. 2 Foundry for first quarter delivery at \$15.50, Valley furnace, or \$16.40, Pittsburgh. Forge Iron is held at about \$14.25, Valley furnace, or \$15.15, Pittsburgh, but on a firm offer \$15, Pittsburgh, would probably be done.

Steel.—Billets and Sheet and Tin Bars are moving out more freely from mills on specifications against contracts, but very few new orders are being placed, consumers being covered by special contracts. We quote Bessemer and Open Hearth Billets, 3½ in. and larger, up to and including 0.25 carbon, \$25; 0.26 to 0.60 carbon, \$1 extra; over 0.60 carbon, \$2 extra, all f.o.b. Pittsburgh. For Wheeling, Martins Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight, or 50c. additional, is charged. Sheet and Tin Bars in random lengths are \$27.50, f.o.b. Pittsburgh. Forging Billets take \$2 advance over Rolling Billets.

(By Mail.)

The tariff hearings before the Ways and Means Committee at Washington have had the effect of unsettling conditions in the Steel trade, the belief being that some radical changes will be made in existing duties. The demand for Pig Iron is not quite so active as it was a week or two ago, but this lull was expected in view of the heavy buying that has been a feature of the market since the election. However, prices remain firm, and furnaces are refusing to sell at present rates for delivery beyond first quarter, believing that early in the new year they will be able to get more. Specifications against contracts for Steel Billets and Sheet and Tin Bars are coming in freely, and shipments by the mills are heavier.

Ferromanganese.—While the tone of the market is firm, inquiries for Ferro in the past week or two have been light, and no large tonnage has been sold. A local consumer was in the market recently for about 250 tons, but has not yet bought. We quote 90 per cent. foreign Ferro at \$44.50 to \$45, seaboard, the rate to Pittsburgh being \$1.90 a ton.

Ferrosilicon.—Prices seem to be somewhat weaker, and we quote 50 per cent. Ferrosilicon at \$63, Pittsburgh. A recent sale of about 50 tons was made for delivery to a point outside of Pittsburgh at slightly less than the above price.

Wire Rods.—Some fairly large inquiries for both Bessemer and Basic Rods are in the market for first quarter delivery, and prices are firm. We quote Bessemer Rods at \$33; Chain Rods, \$33, and Basic Rods, \$35, Pittsburgh.

Muck Bar.—The sharp advance in the price of Northern Forge Iron, which has sold recently above \$15, Pittsburgh, has brought about higher prices for Muck Bar. We now quote best grades of Muck Bar, made from all Pig Iron, at \$27, Pittsburgh, and note a sale of about 300 tons at that price. A prominent local maker of Muck Bar having a high reputation in the trade is quoting \$27.50, Pittsburgh.

Skelp.—Prices of Iron Plates have advanced from \$2 to \$4 a ton, the latter advance being on Charcoal Iron Plates. As yet prices of Steel Skelp have not been changed, but are very firm. We quote Grooved Steel Skelp at 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.75c., and Sheared Iron Skelp, 1.85c., f.o.b. Pittsburgh. A sale is reported of about 500 tons of Sheared Iron Skelp at 1.85c., Pittsburgh.

Steel Rails.—Three or four of the leading trunk lines are in the market with inquiries for upward of 200,000 tons of Steel Rails, and most of this business is expected to be placed between now and January 1. There is still some hitch between the Rail mills and the railroads over specifications, but this is not serious. The Carnegie Steel Company has a nice rolling schedule for this week, having all three Rail mills at Edgar Thomson in operation to about 35 per cent. of capacity, with fair prospects for next week. The demand for Light Rails is fair, the same company having booked about 1200 tons in the past week. Makers of Light Rails rolled from Old Rails continue to sell at \$2 to \$3 a ton under Rails rolled from Billets. Prices on new Light Rails, rolled from Billets, are as follows: \$25 for 25 to 45 lb. Sections, with \$1 advance for 20 lb., \$2 advance for 16 lb., and \$3 advance for 12 lb. Standard Sections are \$28, at mill, and Angle Splice Bars, 1.65c., at mill.

Structural Material.—The Carnegie Steel Company has received from the American Bridge Company specifications for the 25,000 tons of Structural Steel to be used in the construction of the new station of the Chicago & Northwestern Railway at Chicago. No large local contracts were placed the past week, but Structural concerns report heavy inquiries, likely to develop into orders in the near future. The market is firm, and the mills are able to make prompt deliveries. We quote, f.o.b. mill, Pittsburgh: I-Beams and Channels, 3 to 15 in., inclusive, 1.60c., net; I-Beams over 15 in., 1.70c., net; H-Beams over 8 in., 1.80c.; Angles, 3 to 6 in., inclusive, ¼ in. and up 1.60c., net; Angles, over 6 in., 1.70c., net; Angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, Steel Bar card; Tees, 3 in. and up, 1.65c., net; Zees, 3 in. and up 1.60c., net; Angles, Channels and Tees under 3 in., 1.50c., base, half extras, Steel Bar card; Deck Beams and Bulb Angles, 1.90c., net; Hand Rail Tees, 3c., net; Checkered and Corrugated Plates, 3c., net.

Plates.—The demand for Plates continues somewhat slow, none of the specifications for the Plate and Shapes needed for the Steel cars recently placed having yet been received by local mills. A good deal of tonnage is in prospect, and reports are that the Grand Trunk Railway has placed an order with the Pressed Steel Car Company for 1000 Steel cars, in addition to its previous order for 2000. The market on Plates is firmer, and concessions are more infrequent than they were some time ago, most of the orders being placed with the mills at the full regular prices, which are as follows: Tank Plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.60c., base, at mill, Pittsburgh. Extras over this price are as follows:

Tank, Ship and Bridge quality, ¼-in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. Plate. Steel Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. Plates on thin edges.....	\$0.10
Gauges under 3-16-in. to and including No. 8.....	.15
Gauges under No. 8 to and including No. 9.....	.25
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete Circles.....	.20
Boller and Flange Steel Plates.....	.10
"A. B. M. A." and ordinary Firebox Steel Plates..	.20
Still Bottom Steel.....	.30
Marine Steel.....	.40
Locomotive Firebox Steel.....	.50
Shell grade of Steel is abandoned.....	
For widths over 100 in. up to 110 in.....	.05
For widths over 110 in. up to 115 in.....	.10
For widths over 115 in. up to 120 in.....	.15
For widths over 120 in. up to 125 in.....	.25
For widths over 125 in. up to 130 in.....	.50
For widths over 130 in.....	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.50c., f.o.b. Pittsburgh.

Sheets.—The demand for both Black and Galvanized

Sheets continues fairly active, and we are advised that prices are being better held than for some time, nearly all the new orders entered being at full regular prices. The American Sheet & Tin Plate Company is now operating to 56 per cent. of its Sheet mill capacity, and as soon as orders warrant its mill at Sharon will be started up, using the Bray continuous process for rolling Sheets, a decision favorable to the company in the suit of P. E. Donner having just been handed down at Philadelphia. For shipment from mill prices are as follows: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets, Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c.; No. 28, Painted Roofing Sheets, \$1.75 per square, and Galvanized Roofing Sheets, No. 28, \$3.10 per square, for 2½-in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade under the usual conditions, jobbers charging the usual advances for small lots from store.

Tin Plate.—On Monday, November 30, the South Sharon works of the American Sheet & Tin Plate Company will be started. This plant contains 20 hot mills and has been idle for about five months. The company also expects to start in the near future its Greer works, at New Castle, which has been idle for some months, and which contains 20 hot mills. The Shenango works, at New Castle, containing 30 hot mills, the largest single Tin Plate plant owned by the company, has been running full for some time. At the Greer works some new tinning pots are being added in order to make this plant self-contained, a portion of its Black Plate output having heretofore been sold in the open market. Heavy contracts for Tin Plate have been placed by the salmon packers, and other canning interests are now giving out large orders for delivery in the first three or four months of next year. The outlook is that the Tin Plate mills will be quite busy during the winter months. We are advised that regular prices on Tin Plate are being maintained, as follows: \$3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Hoops and Bands.—Consumers are now getting ready to place their season contracts for 1909, but the outlook is that the consumption of Hoops will be materially lessened by reason of the wave of prohibition which is sweeping over the country. It is said that regular prices are being maintained as follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars, Pittsburgh, in carload lots, for delivery during 1908.

Iron and Steel Bars.—Specifications against contracts for Steel Bars are being received by the mills in a steady stream, and shipments are correspondingly heavy. Some of the leading Steel Bar interests are now running nearly full, being the first time this has been the case in some months. The makers of Iron Bars have advanced prices and now quote 1.42c. f.o.b., Pittsburgh, for Western shipment, or 1.60c., Chicago. For delivery in the Pittsburgh District the price is 1.50c. It is stated that these new prices are being maintained. We quote Steel Bars at 1.40c., Pittsburgh, for base sizes.

Railroad Spikes.—As noted by wire in this report last week, a number of the leading railroads have inquiries out for 40,000 to 50,000 kegs of Spikes, but desire to buy for delivery through all of next year at present prices, but the mills are not willing to accept them on this basis, preferring to take contracts only through first quarter or not beyond first half. Prices on Spikes are relatively low, and the Spike makers believe that if general conditions improve they can get higher rates. We quote: Standard sizes, 4½ x 9-16 in., at \$1.70, and the smaller sizes at \$1.80 per 100 lb. in carload and larger lots, with an advance of 5c. per 100 lb. for less than carload, f.o.b. Pittsburgh.

Merchant Steel.—We note quite an active demand for Shafting, and are advised that prices are being more firmly held than for some time. A fair amount of new business is being entered for Tire and Spring Steel, while implement makers and jobbers are specifying fairly well against contracts. On contracts for Shafting regular discounts are slightly shaded, but most of the new business being placed is at official discounts, which are 57 per cent. off in carloads and 52 per cent. on less than carloads delivered in base territory. Prices on Merchant Steel are being shaded, regular quotations being as follows: Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher prices being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron finish, 1½ x ½ in. and heavier, 1.40c.; under 1½ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b., at mill.

Spelter.—The market has quieted down again, and

prices are only fairly strong. We quote prime grades of Western Spelter at 4.90c. to 4.95c., East St. Louis, equal to 5.02½c. to 5.07½c., Pittsburgh.

Merchant Pipe.—The season for placing orders for line Pipe is pretty well over, but the demand for merchant sizes continues quite active, and so far this month has shown an increase over October. Some very large projects in line Pipe are under way, and the mills look for orders involving a heavy tonnage to be placed early next year. The mills are absolutely maintaining prices on both Iron and Steel Pipe. Discounts on Steel Pipe, ¼ to 6 in., to the large trade, are 76 and 5 per cent. off list. Regular discounts are as follows:

Merchant Pipe.		Jobbers, carloads, Steel.	
		Black.	Galv.
1/4 to 1/2 in.	.....	87	51
3/8 in.	.....	69	55
1/2 in.	.....	71	59
3/4 to 6 in.	.....	75	65
7 to 12 in.	.....	72	57
Extra strong, plain ends:			
1/4 to 3/8 in.	.....	60	48
1/2 to 4 in.	.....	67	55
4 1/2 to 8 in.	.....	63	51
Double extra strong, plain ends:			
1/2 to 8 in.	.....	56	45

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
1/4 to 1/2 in.	85	53
3/8 in.	67	53
1/2 in.	69	57
3/4 to 6 in.	73	63
7 to 12 in.	70	55
Extra strong, plain ends:		
1/4 to 3/8 in.	58	46
1/2 to 4 in.	65	53
4 1/2 to 8 in.	61	49
Double extra strong, plain ends:		
1/2 to 8 in.	54	43

Boiler Tubes.—Some fairly large contracts for Boiler Tubes have been made by railroads for delivery in first quarter and first half of next year, but as yet these orders represent only what is absolutely needed. The demand for Merchant Tubes is reported better, and prices on both Locomotive and Merchant Tubes are firmer than for some time. For Merchant Tubes in small lots, on which an extra 5 per cent. is allowed in carloads, discounts are as follows:

Boiler Tubes.		Iron.	Steel.
1 to 1 1/2 in.	.....	42	47
1 3/4 to 2 1/4 in.	.....	42	59
2 1/2 in.	.....	47	61
2 3/4 to 5 in.	.....	52	65
6 to 13 in.	.....	42	59
2 1/2 in. and smaller, over 18 ft. long, 10 per cent. net extra.			
2 1/2 in. and larger, over 22 ft. long, 10 per cent. net extra.			

Iron and Steel Scrap.—Consumers of Steel Scrap are not buying very freely at present, being pretty well covered, but there is a good deal of activity between dealers, and the market is very firm. There was some heavy buying of Steel Scrap three or four weeks ago by the Pittsburgh Steel Company, the Allegheny Steel Company and other large consumers, and some of the dealers who sold Scrap to these interests sold short, and have been compelled to cover their sales at prices that in some cases are \$1 a ton higher than they obtained. Dealers quote about as follows: Heavy Steel Scrap, \$16.75 to \$17, for Pittsburgh, Sharon, Steubenville or Leechburg, Pa., delivery; for delivery at Monessen, Pa., which takes a higher freight rate, \$17 has been quoted. Cast Iron Borings are \$11 to \$11.25; Bundled Sheet Scrap, \$13.50 to \$13.75; No. 1 Busheling Scrap, \$14.75 to \$15; No. 2, \$10.75 to \$11; No. 1 Cast Scrap, \$14.75 to \$15; Iron Axles, \$24 to \$24.50; Sheet Bar Crop Ends, \$18.50 to \$18.75; Re-rolling Rails, \$18.50, delivered Cambridge, Ohio, and \$19 to \$19.50, delivered Cumberland, Md.; Low Phosphorus Melting Stock, \$18 to \$18.25; Steel Axles, \$19.50 to \$20; Scrap Bars, \$13 to \$13.25; Machine Shop Turnings, \$12.25 to \$12.50; Railroad Wrought Scrap, \$16.75 to \$17; Railroad Malleable Scrap, \$15 to \$15.50; Iron Rails, \$18.75 to \$19, and Locomotive Tires, \$17 to \$17.25, all per gross ton f.o.b. Pittsburgh, unless otherwise stated. We note sales as follows: 1000 tons Heavy Steel Scrap at \$16.75; 500 tons at \$16.85; 300 tons of Bundled Sheet Scrap at \$13.75; 2000 tons of Cast Iron Borings at \$11.50 to \$12, delivered; 700 tons of Railroad Malleable Scrap at \$15.75; 1000 tons of Turnings at \$12.50 and \$13, and 500 tons of Old Car Wheels at \$15, Baltimore, equal to \$17.30, Pittsburgh.

Coke.—Conditions in the Coke trade are showing betterment, strictly Connellsville Furnace Coke for prompt delivery now being held at \$1.80 to \$1.85 per net ton, at oven, while on contracts for first half \$2 and higher is being quoted. Connellsville 72-hr. Foundry Coke on contracts for first half of the year is held at \$2.25 up to \$2.50 a ton, at oven. Out of 37,893 ovens in the Connellsville regions, 18,389 were active last week, and 19,504 were idle, the output having been 228,190 tons, a slight decrease over the previous week.

Cincinnati.

CINCINNATI, OHIO, November 25, 1908.—(By Telegraph.)

Conditions in this market are unquestionably improving all the time. As usual in a rising market, the tool trade is the last to feel the effect, and in machinery lines, therefore, the improvement is mainly in sentiment, but hours are being increased, and some additional men being employed. All local tool manufacturers are feeling the improved conditions at this time in the tone of their correspondence, which is strongly optimistic. In finished lines, the same feeling obtains. The most independent attitude is manifested in Pig Iron circles, and to-day not 50 per cent. of the leading interests will quote for the second quarter, and none for the last half, with a number declared out of the market for spot business or first quarter. Rumors also of rehabilitation of idle furnaces and the establishment of new ones are heard. Parties are figuring on building a furnace in one of the largest Indiana cities, and the rehabilitation of the Bird Furnace in Ironton is also announced by a firm of Columbus capitalists and selling agents, the date approximately the first of the year. Encouraging reports come from the manufacturing concerns in the upper end of the State. The jobbing foundries are gradually increasing their melts.

Pig Iron.—Some heavy buying characterised the market the past week, somewhat lessened this week because of the rapidly increasing independence of furnacemen. For instance, the most closely contested inquiry of the week for 1000 tons of analysis Iron for the first half for a large car manufacturing concern in Central Ohio, expected to go through to-day on a basis of \$13, Birmingham, for the Southern, and \$15.50, at furnace, for the Northern, did not materialise. Local financial interests strongly interested in the company felt that inasmuch as it has enough Iron on its yards to last through three-quarters of the year, and as the upset price for next year's deliveries contemplated nothing beyond the first half, they had better wait, and particularly as they are using advantageously some Scrap picked up at attractive prices. The best price heard for Northern Iron to-day is \$15.50, Ironton, and a number of furnaces are asking \$16 for deliveries extending into the second quarter. On Southern Iron furnaces are firm on \$13, Birmingham, for No. 2, which is interpreted as spot business, much extended deliveries bringing out a 50c. advance. There is a scarcity of low grades, the inquiry of the large Indiana melter who wanted 5000 to 8000 tons of Southern Forge, having, it is understood, been abandoned, the company buying Scrap. It is difficult to get a line on Basic, representatives of Southern furnaces, as a rule, announcing that they are sold up for the first quarter. Ohio Silveries are still quotable at \$18.50, at furnace, for 8 per cent. Southern Silicon Irons, showing a little advance when the delivered prices into territory north from Cincinnati are compared. A considerable part of the requirements of the large Indiana agricultural interest which wanted about 3000 tons of Bessemer, 9000 tons of Charcoal and 2400 tons of Foundry is understood to be still pending. A stove manufacturer in southern Indiana wants 1000 tons of Southern No. 2 for the first half; a Pittsburgh manufacturer of Plumbers' Supplies is in the market for 3000 tons, which will probably all go to Northern furnaces, save some Southern Soft for phosphorus; a central Indiana foundry is asking for 2500 tons of No. 1 Soft and No. 2 Foundry for the first half; a northern Indiana foundry and machine concern wants 5000 to 6000 tons of No. 2 Soft and No. 3 Foundry for first half; Michigan Stove foundries are in the market for considerable Iron; one asking for 3000 tons for first half, another 5000 tons for the same delivery, which is expected to be placed with Detroit or Toledo furnaces. A Hamilton, Ohio, foundry, which negotiated for 500 to 800 tons, and which was closely contested, is reported to have bought in Ironton, and the local furnace is said to have such well filled order books as to warrant withdrawal to-day of the \$15.50, Ironton, quotation, and the substitution of a \$16 price for deliveries running through the first half. For delivery balance of the year and for the first quarter we quote, based on freight rates of \$3.25 from Birmingham and \$1.10 from the Hanging Rock District, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$16.75 to \$17.25
Southern Coke, No. 2.....	16.25 to 16.75
Southern Coke, No. 3.....	15.75 to 16.25
Southern Coke, No. 4.....	15.25 to 15.75
Southern Coke, No. 1 Soft.....	16.75 to 17.25
Southern Coke, No. 2 Soft.....	16.25 to 16.75
Southern Coke, Gray Forge.....	14.75 to 15.25
Southern Mottled.....	14.50 to 15.00
Ohio Silvery, 8 per cent. Silicon.....	19.60
Lake Superior Coke, No. 1.....	17.10 to 17.60
Lake Superior Coke, No. 2.....	16.60 to 17.10
Lake Superior Coke, No. 3.....	16.10 to 16.60
Standard Southern Car Wheel.....	22.25 to 23.25
Lake Superior Car Wheel.....	21.75 to 22.75

(By Mail.)

Coke.—The market is active in Furnace brands and prices are firm. Some of the largest contracting of the year has been done within the past week or 10 days, but almost exclusively in Furnace Coke. Five large furnace companies in the South are reported to have bought their first half

supply within the past few days, and through this market. These contracts alone will involve shipments of about 18,000 tons per month. This Coke is reported to have been contracted at something like \$1.85, and comes from the Connellsville and Wise County fields. The best price heard to-day for Connellsville Furnace Coke is \$2, at oven, for the first half, which might be shaded a little for spot deliveries. It is difficult to get a price for the Wise County product, for the reason that the heavy selling of the past few days has reduced the buyers, nearly all of whom are now supplied to the minimum, and nearly all ovens are exceedingly busy getting out shipments on contract. Pocahontas Furnace Coke is selling at \$1.80 to \$1.85, at oven, for the first half. Dealers are agreed that the sale of Foundry Coke is not yet at all commensurate with the heavy selling of Pig Iron, which suggests that these Iron sales have been largely speculative and the melt is still light. Connellsville Foundry for the first half can be bought for from \$2.35 to \$2.50, and Wise County about \$2.25.

Finished Iron and Steel.—All lines are feeling the stimulus of business expansion; inquiries are better, and the prospects seem good for a strong opening of the new year. The report of the \$2 advance in Bar Iron has reached here, but does not affect local dealers as yet, as Western mills are making the old price. Shafting seems to be the strongest item in the local selling market, some excellent sales for shipment to the South and Southwest having been made. Structural Material is still in demand, but somewhat lessened because of the encroachments of cold weather. Dealers report collections slower, although bank deposits are piling up at a remarkable rate. Prices to the trade, f.o.b. Cincinnati, are as follows: Iron Bars, carload lots, 1.55c., base, with half extras; small lots from store, 1.85c., base, half extras; Steel Plates, carload lots, 1.75c., base, with half extras; small lots from store, 1.85c., base, half extras; Base Angles, carload lots, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, ¼-in. and heavier, carload lots, 1.85c.; small lots from store, 2c.; Blue Annealed Sheets, heavy, No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; No. 10 and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; No. 12, carload lots, 2c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in. and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—There is a strong disposition manifest on the part of the large dealers in this territory to force prices, some quoting \$1 advance over last week, although others more modestly have compromised at 25c. to 50c. All yards are full, and some good-sized shipments of Melting Steel have been made to Eastern mills. Although \$15 is to-day indicated as the minimum asking price for Heavy Melting Steel, some late purchases are said to have been made at \$14.50, Cincinnati. On account of the rapid rise in Scrap and so nearly the present price of Pig Iron, interest is veering to the raw furnace product, and some good sales have been made to melters who nominally use Old Material. Dealers' prices to the trade, as nearly as they can be determined from different authorities, whose figures vary considerably, are as follows, f.o.b. Cincinnati:

No. 1 R. R. Wrought, net ton.....	\$13.50 to \$14.50
Cast Borings, net ton.....	5.50 to 6.00
Heavy Melting Steel Scrap, gross ton..	15.00 to 15.50
Steel Turnings, net ton.....	6.00 to 7.00
No. 1 Cast Scrap, net ton.....	13.00 to 14.00
Burnt Cast, net ton.....	9.00 to 10.00
Old Iron Axles, net ton.....	16.75 to 17.75
Old Iron Rails, gross ton.....	15.00 to 16.00
Old Steel Rails, short, gross ton.....	13.00 to 14.00
Old Steel Rails, long, gross ton.....	12.75 to 13.75
Relaying Rails, 56 lb. and up, gross ton	21.50 to 22.50
Old Car Wheels, gross ton.....	15.00 to 16.00
Low Phosphorus Scrap, gross ton.....	14.00 to 15.00

Buffalo.

BUFFALO, N. Y., November 24, 1908.

Pig Iron.—The demand has been well maintained in all lines, with improved inquiry for most grades and a good volume of business placed, principally for first quarter and half of next year. Considerable Malleable has been bought recently for Eastern territory, and there is also quite a heavy demand for Iron from Pipe manufacturers, one inquiry being for 3000 to 5000 tons and two others for 1000 and 800 tons, respectively. We quote as follows, f.o.b. Buffalo:

No. 1 X Foundry.....	\$16.00 to \$16.50
No. 2 X Foundry.....	15.50 to 16.00
No. 2 Plain.....	15.25 to 15.75
No. 3 Foundry.....	15.00 to 15.50
Gray Forge.....	14.75 to 15.25
Basic.....	15.75 to 16.25
Malleable Bessemer.....	16.00 to 17.00
Charcoal.....	20.00 to 20.50

Old Material.—Transactions have not been large, as dealers' and consumers' ideas of values in most lines have

been widely at variance, dealers holding strongly for higher prices than consumers will concede, with no indications of weakening on the part of the former. We quote dealers' asking prices, per gross ton, f.o.b. Buffalo, as follows:

Heavy Melting Steel Scrap.....	\$15.50 to \$16.25
No. 1 Railroad Wrought.....	16.75 to 18.00
No. 1 Railroad and Machinery Cast Scrap.....	14.75 to 15.75
Old Steel Axles.....	18.50 to 20.00
Old Iron Axles.....	22.50 to 24.00
Old Car Wheels.....	17.00 to 18.00
Railroad Malleable.....	14.50 to 15.00
Boiler Plate.....	13.00 to 13.50
Locomotive Grate Bars.....	12.50 to 13.00
Pipe.....	12.50 to 13.00
Wrought Iron and Soft Steel Turnings.....	9.25 to 9.75
Clean Cast Iron Borings.....	8.25 to 8.75
No. 1 Busheling Scrap.....	14.50 to 15.00

Finished Iron and Steel.—The volume of orders is equally as good as for last week in Billets, Bars and general lines, mostly in small lots. In Structural Material there has been a falling off, with little new business of any magnitude in sight, although there are a few Structural propositions in the preliminary stages. The James Stewart Company, Chicago, which has the contract for the entire work on the large new flouring mill that the Washburn-Crosley Company is to erect here, duplicating its present mill, will soon sublet contract for the Structural Steel required.

Cleveland.

CLEVELAND, OHIO, November 24, 1908.

Iron Ore.—With a total movement of about 25,000,000 tons, which is 3,000,000 tons more than predicted early in the year, the shipping season is being rapidly wound up and little Ore will be forwarded from upper lake ports after this week. The last cargoes will leave the upper lake ports before noon of December 5, when the insurance expires. Owing to the unusually mild weather of the past few days the boats have secured good dispatch at the head of the lakes, loading not being delayed by frozen Ore. There has been much improvement in shipping orders from Lake Erie docks in the past 10 days, due largely to the fact that more furnaces have gone into blast, and shipments are now quite good. The Ore that is being sent forward to the furnaces is mostly Ore that was brought down in 1907. Prices at Lake Erie docks per gross ton are as follows: Old Range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; Old Range Non-Bessemer, \$3.70; Mesaba Non-Bessemer, \$3.50.

Pig Iron.—Following the heavy buying movement in Foundry Iron, the market has settled down, and the tonnage sold the past week was very small, as compared with the previous two or three weeks. A local foundry interest purchased considerable for the first half delivery, but with this exception sales have all been in quite small lots. Nearly all the consumers in this territory have covered for their minimum requirements for the first quarter, and a large share of them for the first half. The price has settled down to a basis of \$16, Valley furnace, for No. 2, for the first quarter and half, and it does not appear that this is being shaded to any extent. A local interest has sold some No. 2 at \$16.50, at furnace, and has rejected a number of offers at \$16 from consumers whose freight rate is the same from the Valley as from Cleveland. This interest has again advanced its price, and is quoting \$17, at furnace, as the minimum price for No. 2, for Cleveland and immediate territory. Furnace interests are now so well sold up for the first quarter that they are holding the market firmly, and expect that by holding off they will be able later to get higher prices. A local interest reports sales aggregating 4500 tons of Foundry Iron from its furnace in the Pittsburgh District during the week to consumers in that territory. This was sold in eight lots, the largest being one of 1000 tons. Two furnaces operated by local interests have gone out of blast for repairs, for the reason that they had been working badly for some time. Ella Furnace of Pickands, Mather & Co., at West Middlesex, Pa., which has been on Bessemer Iron, was blown out November 20, and the stack of the Struthers Furnace Company, Struthers, Ohio, which has been on Basic Iron, was blown out November 23. Both will be blown in again as soon as the necessary repairs are made. Inquiries for Basic Iron continue fairly good. A local interest is holding firmly to \$16, Valley furnace, but reports no sales. There is little inquiry for Malleable Iron, the large consumers not yet having come into the market. Foundry Iron for the balance of the year is firmer, producers now asking about the same prices as for the first quarter. For the balance of the year we quote, delivered, Cleveland, as follows:

Bessemer.....	\$16.90
Northern Foundry, No. 1.....	\$17.25 to 17.75
Northern Foundry, No. 2.....	16.75 to 17.25
Northern Foundry, No. 3.....	16.25 to 16.75
Gray Forge.....	15.00 to 16.00
Southern Foundry, No. 2.....	17.35
Jackson County Silvery, 8 per cent. Silicon.....	20.05

Coke.—The market is firm and fairly active in both

grades. A number of foundry interests covered during the week for their requirements of Foundry Coke for the first half. We quote Standard Connellsville Furnace Coke at \$1.90 to \$2, at oven, for delivery during the first half, and Connellsville 72-hr. Foundry at \$2.25, at oven, for balance of the year, and \$2.25 to \$2.40 for the first half of next year.

Finished Iron and Steel.—Specifications continue fairly good, and there is an improvement in the volume of new business in some lines of material, particularly Structural. The principal producers have decided that they will make contracts for Structural Shapes and Plates at present prices for delivery during all of 1909 instead of only to July 1, and this action has stimulated the placing of contracts. One contract for 2500 tons of Structural Shapes has been closed by a local fabricator, and several smaller orders have been taken for extended delivery, and another contract for 3000 tons is pending. Bids will be received soon for the new building to be erected in Cleveland by the Brotherhood of Locomotive Engineers, which will require 2100 tons for delivery about March 1. Specifications are still light, being mostly for small lots. The Carnegie Steel Company booked an order during the week for 3080 tons of Standard Section Rails for a new Ohio railroad, the Port Clinton Short Line, and other inquiries are pending, aggregating about 4000 tons, including 3500 tons for the Wheeling & Lake Erie, which road is also taking about 1600 tons of Standard Sections on an old contract. The lake shipbuilding industry continues to improve. During the week the American Shipbuilding Company took a contract for a 400-ft. freighter for delivery next spring, making four large freight boats this company now has under contract for next season's delivery, and the Great Lakes Engineering Works, Detroit, closed a contract for a 150-ft. passenger boat. It is understood that contracts for two other freight boats will be placed very soon. An improvement is noted in orders from railroads for Iron Bars, Bolts and Nuts for repair work. Although some of the mills have advanced the price of Iron Bars \$2 per ton, local mills and jobbers continue to take orders for early delivery at 1.35c., Pittsburgh, the price that has been prevailing for some time. The demand for Plates continues light, and smaller mills are still shading prices from \$1 to \$2 a ton. The price of Sheets is being more firmly maintained. Steel Bars are firm, and specifications continue good. Jobbers report a fairly good volume of specifications, but new business with them which took a spurt after election is rather light. There is an inquiry from a local manufacturer for about 250 tons of Light Rails for a Government contract in Panama. We quote Iron Bars, 1.45c., Cleveland, for car lots; Steel Bars, 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., Cleveland, and Plates, 1/4-in. and heavier, 1.70c., Cleveland. We quote Sheets, mill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. Jobbers quote Iron and Steel Bars out of stock at 1.65c. to 1.70c. Beams and Channels from warehouse are 2c., and Plates, 1/4-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 2 3/4 to 5 in., are 65 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 71 per cent. discount.

Old Material.—The market has been very active as the result of considerable speculative buying and the covering by dealers who had sold short. When delivery was called for by the mills dealers who had sold short had to pay the prices demanded, which in some cases were at least \$2 a ton higher than the prices paid by the consumers. The activity has caused another advance in prices on several grades, particularly Borings, Turnings, Drillings, Wrought Scrap and Heavy Melting Steel, and the market is very firm. Producers who had been holding their Scrap for some time for better prices have sold quite heavily. No. 1 Busheling has sold at high as \$15, Turnings at \$11, and dealers are offering \$16 for Heavy Melting Steel. Inquiries from consumers are scarce. The present market is almost wholly a dealers' market, consumers are staying out of it as much as possible. Among the railroad offerings this week is a lot of about 500 tons by the Cincinnati, Hamilton & Dayton. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails.....	\$15.00 to \$15.50
Old Iron Rails.....	17.50 to 18.50
Steel Car Axles.....	19.00 to 19.50
Old Car Wheels.....	15.00 to 15.50
Heavy Melting Steel.....	16.00 to 16.50
Relaying Rails, 50 lb. and over.....	22.00 to 23.00
Railroad Malleable.....	13.75 to 14.25
Agricultural Malleable.....	12.50 to 13.00
Light Bundled Sheet Scrap.....	9.50 to 10.00

The following prices are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$20.50 to \$21.00
Cast Borings.....	8.50 to 9.00
Iron and Steel Turnings and Drillings.....	9.50 to 10.00
Steel Axle Turnings.....	10.50 to 11.00
No. 1 Busheling.....	14.00 to 14.50
No. 1 Railroad Wrought.....	15.50 to 16.00
No. 1 Cast.....	13.00 to 13.50
Stove Plate.....	12.00 to 12.50
Bundled Tin Scrap.....	9.00

Metal Market.

NEW YORK, November 25, 1908.

Pig Tin.—Trade has been very quiet. Prices have trended downward, but have later recovered. The announcement last week regarding the Banca sale was untrue, and later advices are to the effect that this sale will be held in Amsterdam, Holland, Thursday. This has further served to increase the dullness. On Tuesday there was a good business. Price changes have been as follows:

		Cents.
November 18.....	30.20 to 30.25	
November 19.....	30.20	
November 20.....	30.15	
November 23.....	29.95	
November 24.....	29.95	
November 25.....	30.35	

The arrivals are 3284 tons and the afloats 1380 tons. The London market closes firm at £137 10s. for spot and £139 for futures.

Copper.—A further contraction in the volume of business has resulted in somewhat lower quotations, both here and abroad. The market is uneven, and speculative lots of Electrolytic might be picked up at 14c., but producers are asking 14.12½c. to 14.25c. It is the same way with Lake, some outside lots being obtainable at 14.37½c., but producers are asking 14.50c. to 14.62½c. In spite of the falling off in the volume of business, the melting of Copper goes forward in larger volume than any time this year. Consumers of Brass and Copper goods are stocking up, but not in any great amount. It is hardly to be expected that there will be another large buying movement very soon, yet good judges of the situation confidently expect that before January 1 another may come. It is also freely expressed in the trade that should prices decline much further there will be fairly heavy buying from the large dealers who operate in a semi-speculative way. The London market has maintained more or less of an even keel and closes firm to-day, after a large volume of business, at £64 for spot, and £64 18s. 9d. for futures. The exports so far this month amount to 16,325 tons.

Pig Lead.—The market continues unusually dull, with the price of the smelting company below that of independent producers, shipment Lead being offered in 50-ton lots at 4.30c. The independent producers are asking 4.37½c., New York, and 4.22½c., St. Louis.

Spelter.—While the volume of business has not increased, prices have advanced, and Spelter in New York now commands 5.10c. to 5.15c. In St. Louis it is 4.95c. to 5c.

Aluminum.—Prices of Aluminum have again been cut 1c. per pound. No. 1 Ingots are quoted at 24c., Rods and Wire on a basis of 32c., and the base price for Sheets is 34c.

Antimony.—No new business has developed in this metal. Hallett's is held at 8.12½c. to 8.25c., Cookson's at 8.37½c. to 8.50c., and Outside Brands at 8c.

Nickel.—Prices are unchanged, at 45c. for 10-ton lots and 50c. to 60c. for smaller lots.

Tin Plate.—An effort to stimulate the foreign consumption of American Tin Plates is being aggressively pushed and some orders are now being taken for shipment to China. Some business of this same nature was effected about two years ago, and there have been spasmodic revivals of it since. Domestic prices are without change, at \$3.89, New York, and \$3.70, Pittsburgh, for 100-lb. I. C. Cote Plates.

Old Metals.—A rather radical revision of the price of Old Metals has occurred, many holders apparently being frightened by the sudden slump in the price of Ingot Copper. Quite a little Metal is coming on the market, and buyers are reluctant to pick it up except on concessions. Dealers' selling prices are, therefore, considerably lower than last week, as follows:

	Cents.
Copper, Heavy and Crucible.....	13.25 to 13.75
Copper, Heavy and Wire.....	13.25 to 13.50
Copper, Light and Bottoms.....	12.00 to 12.25
Brass, Heavy.....	9.50 to 9.75
Brass, Light.....	7.50 to 7.75
Heavy Machine Composition.....	12.50 to 13.00
Clean Brass Turnings.....	8.50 to 8.75
Composition Turnings.....	10.50 to 11.00
Lead, Heavy.....	4.25
Lead, Tea.....	4.00
Zinc Scrap.....	3.50

L. Vogelstein & Co. announce the removal of their offices to 42 Broadway, New York City.

The production of Quicksilver in the United States in 1907 amounted to 21,567 flasks of 75 lb. each. In 1906 the production was 26,238 flasks.

The National Supply and Machinery Dealers' Association announces through its secretary-treasurer, A. T. Anderson, that the mid-year meeting of the Executive Committee will be held December 2, at 10 o'clock a.m., at the Hollenden Hotel, Cleveland, Ohio.

New York.

NEW YORK, November 25, 1908.

Pig Iron.—The purchases of the week in this market have approximated 20,000 tons, Pipe works and machinery foundries taking the bulk of it. Further sales by Buffalo furnaces in New England are reported, a portion of the Iron going to Malleable foundries, and Buffalo furnaces have advanced their prices for both first and second quarters of 1909. Eastern furnaces are not disposed to sell freely at the present level. At the same time buying has evidently been checked by the advances. We quote, at tidewater, \$17.50 to \$17.75 for No. 1 Northern Foundry, \$17 to \$17.50 for No. 2 Foundry, and \$16 to \$16.50 for No. 2 Plain. Alabama Irons are quoted \$17.50 to \$17.75 for No. 1 Foundry, and \$17.25 to \$17.50 for No. 2 Foundry.

Steel Rails.—Orders of the past week include 6500 tons from the Minneapolis, St. Paul & Sault Ste. Marie, 1000 tons for the Joliet & Southern, a traction line, and 1600 tons for an unnamed steam road. Inquiries for next year are coming slowly, though it is believed some contracts may be reported within the next fortnight.

Structural Material.—November promises to show the largest volume of orders for fabricated Steel that has been entered for a number of months. The American Bridge Company, out of a total of about 100,000 tons placed thus far in November, has taken 45,000 tons, or a larger proportion than has come to it in any month for a year. In addition, this company has booked 7000 tons of axles and its axle plant, idle for more than a year, is about to start up. Conditions regarding prices are not uniform, some contracts being taken on a basis indicating that cutting is less severe, while other instances are reported of successful bids which were plainly based on \$4 to \$6 less than the prices at which plain material is ordinarily sold. The American Bridge Company's total for November includes the 24,000 tons previously reported for the Chicago & Northwestern train sheds and approaches at Chicago, and this week this amount has been increased by 4000 tons for the station building for the same road. The company has also booked in the past week 1000 tons for an insane asylum at St. Louis, 1000 tons for the stock yards bridge at St. Paul for the St. Paul Terminal Railroad, 600 tons for a high school at Philadelphia, and 5000 tons for car barns for the Metropolitan Street Railway Company, New York, the erecting contract for which was taken by Post & McCord some time ago. The Cunard pier, for the Boston & Albany, at Boston, 2000 tons, was taken by the Boston Bridge Works, and the new Trust Company Building at Boston, 2200 tons, was awarded to the New England Structural Company. The International Car Company, which has secured a 38-acre site at New Orleans, will receive bids for a number of Steel buildings, including two sheds, 600 ft. long. At San Francisco, Dyer Brothers, local fabricators, have taken considerable work lately, including 2800 tons in the past two weeks, and it is reported foreign shapes will be used on these contracts. We continue to quote, on mill shipments, tidewater deliveries, as follows: Beams, Channels, Angles and Zees, 1.76c.; Tees, 1.81c. On Beams, 18 to 24 in., and Angles, over 6 in., the extra is 0.10c. Structural Material, cut to lengths, is sold in small lots at 2¼c.

Bars.—Quotations on Bar Iron now range from 1.51c. to 1.56c., tidewater, with sellers at the inside rate steadily growing fewer. Raw materials continue to advance, and consequently Bar Iron manufacturers are stiffening in their views. The demand is fair, but it is felt that the closing of the gap between the prices of Iron and Steel Bars will probably cause an increasing part of the trade to turn to Steel. The quotation of Steel Bars continues at 1.56c., tidewater.

Plates.—Manufacturers of Sheared Plates report business decidedly limited in this locality. Some demand from the Structural trade for Universal Plates is noted. Prices are continued as follows at tidewater for standard sized Plates: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Ferroalloys.—Business in Ferromanganese has been about normal, and the price is fairly steady at \$45, Baltimore. Some exceedingly low prices have been made for 50 per cent. Ferrosilicon, and sales have been effected in and around Pittsburgh at \$66 there and even lower.

Cast Iron Pipe.—An inquiry is in the market for 12,000 tons for Havana. Business for this year is pretty well closed, the current demand calling for carload lots only, which when ordered are desired as speedily as possible for the purpose of completing work before freezing weather. Haddonfield, N. J., will open bids December 1 on about 11 miles of Pipe. Inquiries for next year have been quite promising, and in some cases it is believed that buyers are at the point of closing. Manufacturers are asking about \$1 per ton more for delivery in the early spring than ruling figures. The interesting report is in circulation that some of the Pipe founders who took contracts at extremely low prices, expecting to cover their Pig Iron requirements so as

to realize a handsome profit, are in a somewhat uncomfortable position on account of the advancing prices in raw material. Carload lots of 6 in. for immediate shipment are quoted at \$24 per net ton, at tidewater.

Old Material.—While the market is possibly not quite so active as was reported last week, the demand is sufficiently strong to absorb easily such offerings of Old Material as holders are willing to part with. The buying covers all classes and grades, and includes some good quantities of Heavy Melting Steel Scrap. Prices are again somewhat higher, and dealers are confident of a further advance in the near future. Quotations are as follows, New York and vicinity, per gross ton:

Old Girder and T Rails for melting.....	\$13.00 to \$13.50
Heavy Melting Steel Scrap.....	13.00 to 13.50
Old Steel Rails, reolling lengths.....	15.00 to 15.50
Relaying Rails.....	23.50 to 24.00
Old Iron Rails.....	18.00 to 18.50
Standard Hammered Iron Car Axles.....	20.50 to 21.00
Old Steel Car Axles.....	17.50 to 18.00
No. 1 Railroad Wrought.....	17.00 to 17.50
Iron Track Scrap.....	14.00 to 14.50
No. 1 Yard Wrought, long.....	16.00 to 16.50
No. 1 Yard Wrought, short.....	14.00 to 14.50
Light Iron.....	8.50 to 9.00
Cast Borings.....	9.00 to 9.50
Wrought Turnings.....	10.00 to 10.50
Wrought Pipe.....	12.50 to 13.00
Old Car Wheels.....	15.00 to 15.50
No. 1 Heavy Cast, broken up.....	14.50 to 15.00
Stove Plate.....	12.50 to 13.00
Locomotive Grate Bars.....	12.50 to 13.00
Malleable Cast.....	13.50 to 14.00

Iron and Industrial Stocks.

NEW YORK, November 25, 1908.

After quite a protracted upward movement the security market experienced a reaction after the report published in last week's issue and prices declined, in some instances quite sharply, the downward movement continuing until Monday of this week, when a turn for the better took place. The fluctuations from Thursday of last week to Tuesday of this week are shown by the following range of prices on the active iron and steel stocks: United States Steel common 54½ to 57¼, preferred 112½ to 113¼; Bethlehem Steel common 23 to 25, preferred 52 to 54¼; Car and Foundry common 45¼ to 46½, preferred 106½ to 107½; Locomotive common 54¼ to 55¼, preferred 108½ to 109¼; Steel Foundries 38 to 40; Cambria Steel 38¾ to 39¾; Colorado Fuel 37¾ to 39½; Crucible Steel common 8 to 8¼, preferred 52½ to 53¼; Pressed Steel common 38½ to 39¾, preferred 98 to 98¾; Railway Spring common 43¾, preferred 101; Republic common 27 to 27¾, preferred 86½ to 88½; Sloss Sheffield common 77½, ex div. to 80¾; Cast Iron Pipe common 26¾ to 27¾; Can common 8¾ to 9¾, preferred 73 to 76. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 56, preferred 112¾, bonds 102½; Car & Foundry common 46½, preferred 107½; Locomotive common 55¾, preferred 109; Colorado Fuel 39¾; Pressed Steel common 39, preferred 98; Railway Spring common 43¾; Republic common 27¾, preferred 88; Sloss-Sheffield common 80; Cast Iron Pipe common 26¾, preferred 75; Can common 9¾, preferred 75.

Dividends.—The American Brake Shoe & Foundry Company has declared the regular quarterly dividend of 1¼ per cent. on the preferred stock and 1 per cent. on the common stock, payable December 21.

Ashes Disposal from Ships.—The Exeter Machine Works, Pittston, Pa., with branch offices in New York and Philadelphia, advises us that it is the exclusive American manufacturer of the stone, ash and clinker expellers described on page 1481 of *The Iron Age* of November 19. While intended for handling ashes on board ships and yachts of all descriptions, the apparatus is well adapted for many other purposes. In addition to the battleships North Dakota and Delaware this expeller will also be placed on the new battleship Utah, which is being constructed by the New York Shipbuilding Company, Camden, N. J. The British Admiralty has adopted this expeller as the standard on all ships afloat; likewise the Japanese Government. The Mauretania of the Cunard Line has recently been equipped with the device. These expellers are capable of handling 5 to 8 tons of ashes per hour, and there is scarcely any wear or tear on the apparatus, avoiding many of the annoyances which are usually had with handling ashes by other means on board steamships.

Early in January the Shenango Furnace Company, Frick Building, Pittsburgh, will blow out its No. 3 stack

at Sharpsville, Pa., to be rebuilt and have some modern equipment added. This will include a Brown skip hoist, to be supplied by the Brown Hoisting Machinery Company, Cleveland, Ohio.

The Leather Belting Manufacturers' Association.

The question of removing the duty on hides was discussed and strongly advocated at the twenty-first annual convention of the Leather Belting Manufacturers' Association, which was held November 17, at the Hotel Astor, New York. A number of prominent members of the association spoke in favor of sending a committee to Washington to urge their cause. As was stated in *The Iron Age* last week, it was decided that it would be necessary for leather belting manufacturers to demand higher prices because of the advance in the price of hides. It was declared that the tanners are in sympathy with the movement to have the duty on hides removed. The matter was to have been brought up formally by Charles A. Schieren of the Charles A. Schieren Company, who was to have addressed the association on "The Tariff, Its Effect on the Price of Hides and Leather," but Mr. Schieren was unable to attend the meeting, so it was brought up by other members in an informal discussion.

With a view to keeping in better touch with the trade conditions throughout the country, it was decided to increase the Executive Committee of the organization to 20 members, this movement to include the officers of the association. In that connection the annual election resulted in the re-election of all of the officers, as follows: President, Edward P. Alexander, Alexander Bros., Philadelphia, Pa.; vice-presidents, Frank H. Croul, Detroit Oak Belting Company, Detroit, Mich.; Milton H. Cook, H. N. Cook Belting Company, San Francisco, Cal.; Geo. B. Rowbotham, Bay State Belting Company, Boston, Mass.; secretary and treasurer, Geo. H. Blake, New York City.

The members of the Executive Committee besides the officers are: Chas. T. Page, chairman, Page Belting Company, Concord, N. H.; C. E. Aaron, New York Leather Belting Company, New York; E. H. Ball, Chicago Belting Company, Chicago; F. A. M. Burrell, Charles A. Schieren Company, New York; J. F. Dickinson, Southern Belting Company, Atlanta, Ga.; H. H. Gallup, Norwich Belt Mfg. Company, Norwich, Conn.; R. N. Hathaway, Union Belt Company, Fall River, Mass.; James Moloney, Moloney Belting Company, Chicago; C. G. Neff, Bradford Belting Company, Cincinnati; C. E. Newton, Jewell Belting Company, Hartford, Conn.; W. A. Nicholson, Hartley-Rose Belting Company, Pittsburgh, Pa.; A. B. Rinehart, Akron Belting Company, Akron, Ohio; J. A. J. Shultz, Shultz Belting Company, St. Louis, Mo.; A. H. Sleigh, Estate of E. R. Ladew, New York; W. M. Spaulding, Graton & Knight Mfg. Company, Worcester, Mass.; Frank B. Williams, I. B. Williams & Sons, Dover, N. H.

During the session of the association a paper was presented by Harrington Emerson, the subject being "Leather Belting Compared with Rope Drives," and John T. Fisk, commissioner of the National Association of Gas Appliance Manufacturers, addressed the organization. The Executive Committee held a meeting after the Tuesday afternoon session, and met again on Wednesday morning to complete its organization. The Jewell Belting Company, Hartford, Conn., and W. S. Nott, Minneapolis, Minn., were elected to membership.

At the recent annual meeting of stockholders of the United Engineering & Foundry Company, Pittsburgh, all the former officers and directors were re-elected. Isaac W. Frank is president; Charles E. Satler, secretary; Edward Kneeland, treasurer; R. W. Tener, auditor, and H. A. Grusch, purchasing agent.

Arrangements have been made to start up Bird Furnace, near Ironton, Ohio. Since it was blown out in December, 1907, the furnace has been thoroughly repaired. Fieser & Bentley, Columbus, Ohio, have been appointed exclusive sales agents for the product, which will be foundry and malleable Bessemer pig iron.

Trade Publications.

Tool Steel.—C. W. Leavitt & Co., 220 Broadway, New York. Pamphlet, 5½ x 9 in.; pages, 14. Originally issued by the Societe Anonyme Electrometallurgique, Ugine, France, and devoted to Paul Girod's electric steel as manufactured at Ugine. The characteristics of the various steels manufactured in the electric furnace are given. The structural steels have an elastic limit closely approaching the breaking stress. Case hardening steels are especially an electric furnace product, since the action of the air is avoided. After case hardening, the central portion remains fibrous and the hard surface has no tendency to splinter. Results of physical tests on various carbon steels are given, also on silico-manganese, nickel, chrome-nickel and special "K. N. A." steel, the last named being used for machine parts requiring great tenacity and durability and resistance to sudden shock. In November the new works at Ugine are to be started, steel being supplied by two electric furnaces of 8 to 10 tons and two of 2 tons.

Barium Chloride Hardening Process.—Firth-Sterling Steel Company, E. S. Jackman & Co., agents, Chicago, Ill. Pocket size leaflet; pages, 16. Describes and illustrates the barium chloride process for treating Blue Chip high speed steel. The object is to treat tools at a high heat and have them come out unchanged, bright surfaces, sharp edges and points intact, and at the same time no loss in size. Details of the process as employed by Wheelock, Lovejoy & Co., New York agents of the Firth-Sterling Steel Company, were given in *The Iron Age* of October 29, page 1216.

Spring Steel.—Patriarche & Bell, 215 Pearl street, New York. Leaflet giving a new list of sizes of spring steel carried in stock for railroad, automobile, gun spring and general mechanical uses—rounds, squares and flats.

Nuts, Bolts and Rivets.—American Iron and Steel Mfg. Company, Lebanon, Pa. Catalogue, 6 x 9 in.; pages, 103; flexible binding. Illustrates, with full details of sizes, the bolts, nuts, rivets, spikes, forgings and bar iron manufactured by this company. Its mills have been enlarged and improved and much new equipment added in the past six years. Stock ready for shipment amounts to 16,000 tons. The capacity for producing iron and steel bars now provided at Reading and Lebanon, Pa., amounts to 160,000 tons a year. Illustrations are given of the two plants at Lebanon and one at Reading.

Ice Harvesting Machinery.—A. L. Schultz & Son, 570 Elston avenue, Chicago. Catalogue No. 10, 15 pages. Devoted principally to the installation and description of machinery and equipment for handling ice in and out of ice storage houses. Several different systems, including the side feed elevator incline, undershot elevator, elevator conveyor, perpendicular elevator, double gig elevator and the endless chain lowering machine, are shown. A machine for planing the ice to even thickness as it travels up any of the various inclines is illustrated; it is an attachment of particular utility, since it removes any slush or impurities on the surface of the blocks. A line of ice plow saws and other cutting and handling tools is shown. The catalogue ends with illustrations of a friction clutch pulley, one of the company's latest products.

Transformers.—The Hornberger Transformer Company, La Fayette, Ind. Folder. Treats of the line of transformers made by the company, including floor, pole and subway types, the construction and special features of which are described. Also contains a tabular statement of the electrical characteristics, prices and weights of these transformers.

Hardening High Speed Steel.—Chicago Flexible Shaft Company, La Salle avenue and Ontario street, Chicago, Ill. Pamphlet. Deals with the barium chloride process of hardening high speed steel lathe, planer, boring and cutting tools, and illustrates the Stewart No. 60 crucible furnace of this purpose. The construction of the furnace and its method of operation are described. The Stewart No. 1 oven furnace for pre-heating and the Hoskins pyrometer for indicating temperatures up to 1400 degrees C. or 2550 degrees F. are also shown.

Generators and Panels.—Crocker-Wheeler Company, Ampere, N. J. Bulletins. No. 95, supplement 1, refers to belt type alternating current generators; No. 106 is devoted to type 3, 125-250 volt, direct current switchboard panels, giving illustrations of standard switchboard panels, which can be assembled together to form a switchboard of any size and capacity, and suggestions as to the instruments and apparatus necessary on switchboards; No. 107, superseding No. 80, describes a line of direct current lighting and power generators of large sizes and illustrates complete installations; No. 108, superseding No. 74, shows installations and describes the design of the company's engine-type alternating current generators for central stations and industrial plants, and No. 109, superseding No. 71, refers to Crocker-Wheeler direct current 2 to 19 kw. generating sets with type D vertical, two-cylinder, single-acting engines made by the U. S. Rapid Fire Gun & Power Company, Derby, Conn.

Pumps and Engines.—Blake & Knowles Steam Pump Works, 115 Broadway, New York City. Bulletins. No. K-813 deals with several sizes and types of Knowles mine sinking pumps of the outside center-packed plunger pattern, and tele-

scope extension joints, and suction condensers; No. K-814 gives illustrations, dimensions and specifications of Knowles single and duplex boiler feed and tank pumps; No. B-815 treats similarly of the Blake single and duplex boiler feed and tank pumps; No. B-817 pertains to the Blake vertical high speed engines, which are built in four styles—the single open frame type, single inclosed frame type, double type and cross compound type, and No. K-818 deals with Knowles type M single horizontal piston pumps for 200 lb. maximum working water pressure.

Lathes.—Gisholt Machine Company, Madison, Wis. Pages 13 and 14, for insertion in binder. These describe the first and second operations of finishing locomotive piston centers in the Gisholt 34-in. lathe.

Spring Bedding and Pottery Machinery.—William H. Ivens' Sons Company, Trenton, N. J. Circular. One contains illustrations and brief descriptions of spring bedding machinery, including a power clip closing machine, improved S clip machine, and power bowing machine. The other circular shows potters' machines for bowls, nappies, cups, plates, saucers, dishes, jugs, &c.

Sand Drier.—Indiana Foundry Company, Ltd., Indiana, Pa. Pamphlet. Deals with the Sutton sand drier, which is stated to be simple in design, massive and to stand hard usage. This drier requires no attention, and the stove may be fed with hard or soft coal, coke or wood.

Truing Devices.—S. A. Woods Machine Company, Boston, Mass. Catalogue. Size, 6 x 9 in.; pages, 23. Devoted to Woods truing devices for grinding planer knives while in motion, thereby truing them so that the several knives will follow one exact path, each doing its full share of work. Illustrations are given of the top, side head and bottom truing devices, and of planers equipped with these. Complete descriptions and instructions for using the devices are included. An illustrated description of the Woods truing devices appeared in *The Iron Age* November 5, 1908.

Motors and Fans.—Emerson Electric Mfg. Company, St. Louis, Mo. Four bulletins. These illustrate and describe the following products: No. 3136 (superseding Nos. 3123, 3124, 3126, 3128 and 3129), single phase induction motors of the full load automatic start type, in sizes from 1-20 to ½ hp.; No. 3214 (superseding No. 3200), direct current spherical type bipolar inclosed motors, in sizes from 1-20 to 1-6 hp.; No. 3125 (superseding Nos. 3207, 3208 and 3212), direct current bipolar inclosed motors of from ¾ to ½ hp. sizes, in compound, shunt and series wound types, and No. 3505 (superseding No. 3504), 12, 18 and 24 in. direct connected electric exhaust fans for alternating and direct currents.

Core Machines.—Brown Specialty Machinery Company, Jackson boulevard and Clinton street, Chicago, Ill. Pamphlet. Gives points of merit of the screw machine for making cores and objections to the plunger core machine. Reference is made to the company's hammer core machine, which is claimed to make perfect cores.

Drill Sockets.—American Specialty Company, 1440 Monadnock Building, Chicago, Ill. Circular. Pertains to the Use-Em-Up drill sockets of the sleeve and fitted or socket types, and gives tables of sizes, specifications and prices. An illustrated description of the drill sockets appeared in *The Iron Age* July 2, 1908.

Ore Crushers.—Sturtevant Mill Company, Boston, Mass. Catalogue 1116, 6 x 9 in., 16 pages. Shows a number of types of the Sturtevant crusher both in standard and special designs. Stress is laid on the fact that the crushers are of plate steel, and arguments are used to demonstrate their advantage over those of cast iron. The machines shown include a crusher capable of being set to ½ in., with a maximum output of 20 tons an hour. The Newaygo separator for wet or dry screening is given some space, and two types of the machine are illustrated. This separator was described in *The Iron Age*, October 10, 1907.

Separators.—Liberty Mfg. Company, 6910 Susquehanna street, Pittsburgh, Pa. Bulletin No. 50. The Liberty-Greenaway separators for separating the condensation and oil from live steam or from ammonia or other gases is illustrated and described in this bulletin. The company makes both vertical and horizontal separators and also makes a special ammonia separator.

Fire Door and Back Combustion Chamber Arches.—Mayville Specialty Mfg. Company, Mayville, Wis. Booklet. Describes arches specially designed for supporting the brick work about the fire doors and back combustion chambers of boilers. The arch consists of a circular casting lined with fire-brick and can be so adjusted that a boiler can be removed or replaced without disturbing the brick work. The arch is shown as applied to a fire door and the back combustion chamber of a boiler.

Feeder Regulators and Tantalum Lamps.—General Electric Company, Schenectady, N. Y. Two circulars. No. 3702 describes the new type CR feeder regulator, for use in connection with alternating current lighting systems. The regulator is designed for operation on single-phase 220-volt 60-cycle circuits, and may be used with either hand or sprocket control. No. 3705 refers to a new small high efficiency tantalum filament lamp giving 12½ cp. on 25 watts.

The Machinery Trade.

NEW YORK, November 25, 1908.

Business is gradually improving in practically all branches of mechanical equipment, and while the demand is light as yet, there are unmistakable signs of a growing volume that is very encouraging. Particularly is this so in the machine tool trade where both the orders and inquiries increased perceptibly the past week, and though they covered only a few tools each, they were sufficient in number to go around. Not for some time has business been of great enough volume to permit of all reporting a better demand in the same week, and in this machinery houses see the beginning of a permanent improvement. Houses are much encouraged by the increased number of inquiries received, believing that soon after the turn of the new year they will develop into orders. Manufacturers of electrical generating apparatus report a better demand than for any time the past year. The leading builder has received more inquiries for apparatus since our last report than for a long time, many of which are for heavy equipment, such as is used by the railroads and large power plants and industrial works. Another manufacturer reports that its orders for motors, especially, have greatly increased since the first of the month.

Walter L. Clark, vice-president of the Niles-Bement-Pond Company, who keeps as closely in touch with the entire machine tool situation as any man in the trade, speaks very encouragingly. He states that every one of the plants of the company is experiencing a decided business revival. He points out, furthermore, that the nature of the business is such as to indicate that the resumption is coming along most healthy and sound lines. This, he says, is because the new business is coming in the shape of small and medium size orders from many concerns in all lines of industry. Everybody seems to be feeling better and is proceeding cautiously, but they have commenced buying. The railroads and large corporations are purchasing a tool here and there, but have not come in with any orders of individual magnitude. The Pratt & Whitney plant at Hartford, which produces machine tools of the smaller sizes and which are of types more generally in use in the average machine shop, seems to be filling with work more rapidly than the shops producing the heavier and special types of machine tools. Mr. Clark expresses the opinion that the present business movement bears all the earmarks of an active return of prosperity to the machine tool industry which should last for a considerable length of time and soon assume large proportions.

It is possible that the orders for machinery for export from the larger houses that invariably keep on hand at least a good assortment of machine tools will fall off during the next few weeks, but that should not be taken as an indication that there is a general falling off in business, as it is the custom of most of the export houses that maintain storage facilities for machinery to weed out their surplus stock shortly before the first of the year with a view to taking their annual inventory of their holdings. This, of course, will apply only to the export men who keep standard machines on hand in order to enable them to make quick deliveries, and it will not affect the general export trade where orders are placed only after receiving a demand from a customer. It is possible that the question of stock taking will influence domestic buyers also, as it is the custom in many manufacturing plants throughout the country, especially when business is slack, to close down their plants and take an inventory of their assets. It is deemed advisable in many cases to defer the buying of needed equipment until the annual stock taking, and in consequence some buying will necessarily be held over until after the first of the year.

International Car Company's New Plant.

Bids are now being received by the International Car Company, Maison Blanche Building, New Orleans, La., for the necessary machinery to completely equip its new car building and repair plant. It is the intention to equip this plant with modern machinery throughout and as several buildings are to be erected, the trade should shortly receive some substantial orders for metal working and wood working machinery, power plant equipment, &c. Bids have been received and contracts are about to be let for the buildings to comprise the plant, which will include a planing mill, 60 x 100 ft.; blacksmith shop, 60 x 75 ft.; machine shop, 60 x 60 ft.; powerhouse, 60 x 110 ft.; two open work sheds, 80 x 600 ft., and office building, 60 x 100 ft. The plant will be constructed on a tract of 38 acres purchased from the New Orleans Terminal Company and which is very desirable for an enterprise of this nature. The land has been surveyed and six miles of track have been laid to facilitate the construction of the buildings and manufacture after the plant is placed in operation. The buildings will be of struc-

tural steel. The company has been assured of about all the work it can handle in its plant for the next two or three years. C. A. Ralston of Ralston & Le Baron, Chicago, Ill., has resigned as president of the company because of his inability to give the business the attention which it will require, and W. H. Bofinger of New Orleans has been elected president. C. K. Barnes of Louisville, Ky., has been elected secretary, with headquarters at the general offices in New Orleans. A. T. Le Baron is vice-president and general manager, and A. Wagatha, treasurer.

A number of enterprises which were held up during the last year because of the business depression, it is thought in the trade, will shortly come forward again as important factors in the machinery market, and it is said among these will be the project of the New York Edison Company to erect a new central station at 201st street, New York. It will be remembered that last April the company had inquiries out for about 12,000 tons of structural steel for the building and afterward decided to postpone the construction of the plant. There are some indications that the company is again looking into the question of building this plant, and it is probable that this will be one of the big enterprises carried out in the Manhattan territory before long.

A large steam power plant is to be erected by the Montreal Light, Heat & Power Company, Montreal, Canada, which is expected eventually to produce 100,000 hp. It is the intention to build only in units as necessity demands, the plant to be used as a relay plant. The plans for the new plant have not yet been completed.

The Reading Power Company, Reading, Pa., which is to construct a large power plant, is receiving bids for the excavation work and building the foundations for the new plant. It is said that the equipment will include seven 3200-kw. steam turbines and that the plant will be constructed at a cost of about \$1,500,000. The plant will furnish electricity for operating the railway system throughout the Schuylkill and Lebanon valleys, and the old power plants of the company will be used as transformer stations.

Alexander & Baldwin, 82 Wall street, New York, exporters, are in the market for a two-ton ice machine, for export to the Hawaiian Islands, either of the ammonia, absorption, or compression system, the engine to be operated by crude oil. This plant is to be somewhat of an experiment, and if found to operate successfully it is likely that a much larger plant will be installed.

The Department of Public Charities of New York will receive bids on December 2, at its offices at the foot of East Twenty-sixth street, for material for a complete electric lighting and power system for several buildings and grounds under the jurisdiction of the department on Blackwell's Island. The surety required is \$10,000.

The old project to build a tunnel under the Delaware River, connecting Camden, N. J., and Philadelphia, Pa., has again been brought forth by the incorporation of the Camden Tunnel Company, to operate a railroad connecting the two cities under the river. Those connected with the company include William A. Stern, Isaac Silverman of Stern & Silverman, Benjamin and Edward Wolf of the firm of Wolf Brothers & Co., bankers, Philadelphia, Pa.

Bids for Barge Canal contracts aggregating nearly \$7,000,000 were opened in the office of the State Superintendent of Public Works, Albany, N. Y., November 17 and 18. For contract No. 40, covering the improvement of the Erie Canal from Lockport to Sulphur Springs, a distance of 4 miles, that of the United Engineering & Contracting Company, New York, for \$2,166,298 was the lowest. The bid was about \$350,000 under the engineers' estimate. Of the seven bids submitted for contract No. 46, for the construction of the canal from Fox Ridge to Galen, about 9 miles, that of the Kinser Construction Company, Chicago, Ill., and Fort Edward, N. Y., for \$1,212,833 was the lowest, being \$154,750 under the engineers' estimate. Nineteen bids were received for contract No. 41, for building embankments on Irondequoit Creek, the lowest being that of the Butler Brothers-Hoff Company, New York, which agrees to do the work for \$281,330. The Crowell-Sherman Company, Cleveland, Ohio, was the lowest bidder for contract No. 47, for constructing the canal from Galen to Lyons, at \$1,262,638. Shanley & Morrissey, New York, were the lowest bidders on contract No. 68, at \$1,018,323, for the construction of the locks at Mechanicsville, Stillwater, and Northumberland, as against the engineers' estimate of \$1,175,623. The above contractors have been awarded contracts for the work on which they were the lowest bidders. Several thousand tons of structural steel and castings, and large quantities of other material will be required for carrying out the contracts.

Chicago Machinery Market.

CHICAGO, ILL., November 24, 1908.

The machinery market is beginning to feel the effects of the gradual spread in industrial activity in an increasing number of actual orders and in the extending range and volume of inquiries. One of the leading machine tool houses reports its November business thus far not only ex-

ceeds that of any other month this year, but equals the combined totals of any two or three months of this period. The demands of the railroads are yet light, but it is understood that several of the leading lines have issued orders to the mechanical departments to prepare requisitions for tool requirements. Some of the lists comprising these requisitions may be submitted to the trade within the next 30 days, though it is believed that general action along this line will probably be deferred until the first of the year or soon thereafter. While the general character of buying is not markedly changed, and is still to a great extent restricted to orders of limited size, the inquiries coming out indicate more extended requirements to supply which more important orders are expected to develop soon.

Business in electrical machinery and equipment is picking up in a way that affords much encouragement. The rate of progress in this industry is rather more rapid than in other lines. This in Western territory is doubtless due in some measure, at least, to the growing interest that is being manifested in water power development, and to the extending application of electricity as a motive power. New hydro-electric projects are quite numerous, especially in the Northwest, many of them being of important size and of a practical nature that appeals to and enlists the necessary capital to carry them through.

The Holms Machine Mfg. Company, Sparta, Mich., incorporated with a capital stock of \$100,000, is constructing a new plant for the manufacture of gasoline engines, automobile engines and concrete machinery. The buildings, which will be of concrete, with floors of the same material, will include a foundry 100 x 204 ft., and a pattern shop, 50 x 100 ft. The machinery equipment for the plant has not yet been purchased. It is expected that the new works will be in operation by July, 1909, employing 250 men. The officers of the company are: P. J. Holm, president, and J. E. Replogle, secretary.

The increased number of inquiries recently received by the Chicago Pneumatic Tool Company indicate a greater degree of interest in pneumatic and electric tools and equipment than has been manifested by the larger manufacturing concerns for months past. No marked increase in the general volume of orders is yet observed, but the outlook for a gradual growth in demand is distinctly better. Among recent orders entered by the company are two large Corliss compressors of 2000 ft. free air per minute capacity, one of which was purchased by Corrigan, McKinney & Co., for installation in the mines of the Colby Iron Mining Company at Bessemer, Mich.; the other going to the Haskal, Barker Car Company, Michigan City, Mich.

The Coast Lighting Company, Seattle, Wash., has been incorporated, with a capital of \$25,000, to manufacture gasoline gas machines and handle gasoline lamps and supplies. For the completion of its shop equipment the company will be in the market a little later on for sheet metal working tools. W. May is the secretary and manager.

Among the many plans for active development of water power now in progress and under construction in the States of Michigan and Wisconsin, is that of the Menominee & Marinette Light & Traction Company, Menominee, Mich. Power for the operation of a traction and lighting system, serving the manufacturing towns of Menominee, Mich., and Marinette, Wis., and controlled by this company, is now generated by a steam plant, which will be supplanted by a new hydro-electric power plant, under construction on the Menominee River, at a point 19 miles north of the city. The ultimate plans of the company contemplate the development of 6000 hp. The initial installation will provide 4000 hp., for the generation of which orders have been placed with the Westinghouse Electric & Mfg. Company, for two 1100-kw. a. c. generators, and two 100-kw. d. c. generators, together with transformers, switchboards and other electrical appliances; and two 1900-hp. and two 225-hp. water turbines, with four Lombard governors, which will be furnished by the Dayton Globe Iron Works Company, Dayton, Ohio. Additional equipment required to complete the plant will be installed as the needs of service demands.

Plans are being prepared for an electric light plant to be built by the Council Grove Ice Company, Council Grove, Kan., which will be operated in connection with its ice plant. The system will consist of two units for night and day current, and the generators will be of the direct connected type. None of the material for this installation has yet been purchased.

The Citizens' Light & Power Company, Claremont, Cal., is arranging to enlarge its water plant, and the improvements contemplated will call for the installation of some additional machinery. Whether gas engine or electricity will be used for motive power in the pumping plant has not been determined.

Plans are now under consideration by the Albert Lea Light & Power Company, Albert Lea, Minn., which provide for the installation of an engine, generator and boiler in the power plant, together with some other auxiliary apparatus; also the laying of about six miles of gas mains and the building of about 5 miles more of pole line.

The Northwestern Electric Equipment Company, St.

Paul, Minn., has secured the contract for the engine, generator and electric equipment for a new municipal light plant to be installed at Buffalo, Minn.

Plans have been completed, and construction will be begun at once on a new plant for the Featherstone Foundry & Machine Company, Chicago, to be located at Ninety-fifth street and Cottage Grove avenue. The buildings comprising this plant will consist of a one-story foundry, 130 x 360 ft., and a three-story fireproof storage warehouse, 75 x 133 ft. The capital stock of the company was recently increased from \$400,000 to \$700,000. Some improvements are also contemplated at the present North Side plant. Considerable machinery equipment will be required for the new works, the motive power for which will be furnished by electric current, taken from outside. Contracts call for the completion of the buildings in 60 days, and the machinery will be purchased in the meantime.

Cleveland Machinery Market.

CLEVELAND, OHIO, November 24, 1908.

The local machinery market has been quite satisfactory during the past week, although not quite as active as during the previous week, when there was a spurt of buying, a large share of which was by the automobile builders. Taken as a whole, the outlook is improving, and the feeling among machinery dealers and builders of machine tools is fairly good. Some inquiries that were made months ago have been revived, and are expected to result in the placing of orders early next year if not sooner. A good volume of new inquiries is coming in from manufacturers of various lines who have been waiting until conditions improved before placing orders for needed equipment. The end of the year is so near at hand, however, that it is expected that the placing of some of these prospective orders will be deferred until January.

The tools most in demand at present are lathes, milling machines and gear cutters in medium sizes. The demand for wood working machinery is fairly good, and a little more activity is noticed in the second-hand machine tool market. The demand for mill supplies shows a further improvement, and is now very good, and this is one of the most encouraging features of the situation. Machinery houses are now securing contracts from manufacturing plants for mill supplies for delivery during the coming year, and consumers of these supplies are placing good-sized orders.

Among the tool builders the makers of automatic machines report an improvement in orders and inquiries. Some good orders are coming from builders of textile machinery in the east. The demand for electrical equipment for industrial plants is growing better. Builders of heavy machinery report considerable improvement in the outlook. There is an increase in the demand for cranes for industrial plants, and for large hoists and other machinery for mines, and for hydro-electric equipment.

Reports received by the local branch of the National Metal Trades' Association indicate that more men are gradually being added to the working forces of various manufacturing plants, the increase in the number of men employed being more noticeable among manufacturers of automobiles and automobile parts than in other lines. Many manufacturing plants that have not increased the number of their workmen during the past two weeks have increased the working hours in their plants to their normal length.

Engineering firms report a decided improvement in the outlook for industrial plant construction work. In response to inquiries local engineers are now figuring on considerable proposed work in the line of plant additions and the erection of new plants.

The Pneumatic Nut Machine Company, Cleveland, has been incorporated with a capitalization of \$25,000, to place on the market a new pneumatic machine for the manufacture of nuts. The machine will be made at present at the plant of Mather & Waechter, tool makers, High avenue, this concern having secured control of the new machine. In order to provide room for the manufacture of the nut machine and to accommodate their growing business, Mather & Waechter have secured a site on which they expect to erect a new plant in the spring, and at that time they will probably be in the market for some additional machine tool equipment. The incorporators of the nut machine company are John Boma, W. H. H. Mather, Victor L. Waechter, R. B. Washburn, and C. E. Bullock.

The Wellman-Seaver-Morgan Company, Cleveland, reports much improvement in inquiries for large hoists and other equipment for Western copper and lead mines, and for Pennsylvania coal mines. Inquiries received for hydro-electric equipment also show an improvement. The company is gradually increasing the working force in its plant, and regards the outlook for a good volume of business during the coming year as very satisfactory.

The Cleveland Automatic Machine Company reports an improvement in the volume of orders and inquiries, having

recently taken a number of orders for from two to eight machines. This company reports a good demand at present for automatic machines from Eastern manufacturers of textile machinery.

The Ohio Gas Heated Flatiron Company, Canton, Ohio, has been incorporated, with a capitalization of \$25,000. The company's product is now being made by outside manufacturers, but it is the intention to erect a suitable manufacturing plant. The incorporators are C. A. Dougherty, Alfred H. Davies, Frank J. Groth, Charles J. Loichot, Julius A. Balm, J. J. McCall, H. J. Sammon, S. F. Bowman and Louis E. Deuble.

The Nagle Engine & Boiler Works, Erie, Pa., has placed an order with a local machinery house for five electric cranes, of from 5 to 10 tons capacity, for equipment for a new shop built by that company some time ago.

F. Bissell & Co., Toledo, are looking for a site on which they announce that they will build a large plant for the manufacture of electrical machinery, switchboards and power motors for sewing machines.

Alliance capitalists are negotiating with Receiver Wade A. Taylor for the purchase of the plant of the Niles Boiler Company, Niles, Ohio, with the view of converting it into a foundry and machine shop.

The Roberts Motor Company, Clyde, Ohio, has completed arrangements for the purchase of the plant of the National Valve Company, Sandusky, Ohio, and the work of removing the Roberts plant to its new location will be started at once. The products of the Roberts Motor Company consist of marine, stationary and automobile motors and motor air compressors.

The C. O. Bartlett & Snow Company, Cleveland, reports a gradual improvement in the demand for its line of mill machinery for grinding grain, sales of this class of machinery in Mexico and South America showing considerable increase. The company is running its plant on full time, and expects that the volume of its business during the present year will fall but little below that of 1907.

Philadelphia Machinery Market.

PHILADELPHIA, PA., November 24, 1908.

Interviews with a number of manufacturers of machine tools would indicate that they have not yet experienced any particular increase in the volume of business. Inquiries have been better, but it is hardly expected that they will develop into orders of any consequence until after the turn of the year. There are of course some exceptions, where quite a fair run of business, largely in the nature of orders held in abeyance previous to election, has come out, but stocks on builders' hands are large and tools ordered have to a large extent been supplied from stocks, so that as far as any immediate increase in production is concerned but little is to be noted.

Some few plants are now being operated on a 75 to 80 per cent. basis, but usually these are such as manufacture specialties to a large extent. Until the industrial plants, steel mills and manufacturing establishments generally become better occupied, no particular buying movement in tools is expected, but it must be said that activity in that direction is much more pronounced. The railroads have been somewhat more liberal buyers of equipment, locomotive builders report better orders, and as the already increased business comes to the railroads, for transportation, more will likely be needed. As far as machine tool buying on the part of the railroads in this territory is concerned, however, no great volume of business is expected in the near future. More activity is shown by the shipyards, and in many of the general lines so that with business slowly moving forward the trade looks with increasing encouragement on the prospects for future business.

Dealers report a shade more business. Consumers come into the market irregularly, and their requirements are small, but the total is fairly good, and gradually increasing. Some few larger propositions are being considered, but the bulk of the trade done is still confined to individual propositions which to a large extent are supplied from stocks on dealers' floors and in warehouse, so that but a comparatively small share of the business taken by the dealers finds its way to actual manufacturers.

The demand for second-hand machinery holds up fairly well, and improves slowly, but steadily. The volume of business is still far below normal. Inquiries cover quite a wide range, but tools of the better grades find the most ready sale. Transactions are still confined to equipment of the medium and smaller character. The boiler and engine trade shows practically no change. Some business has been done in new work of medium capacity, while second-hand equipment sold has been largely confined to the engines and boilers of the smaller horsepower.

The foundry trade is a shade more active, but the demand which comes from the railroad trade in normal times is still missing and retards more activity in both iron and

steel casting plants. In some few cases buyers are placing more liberal orders, but the improvement coming from machine tool builders' requirements is not extensive.

Ballenger & Perrot, architects and engineers, have awarded the contract for building the addition to the manufacturing plant of George P. Pilling & Son to the Royd-house-Aray Company of this city.

The Reading Power Company, Reading, Pa., has decided to erect its new power plant on the west bank of the Schuylkill River, near that city. The proposed structure is to be one story high and the machinery to be installed will generate 20,000 hp. Seven turbines will be used, each having a capacity of 3200 kw.

The Energy Elevator Company reports an increased volume of business. Orders have come out more freely, both from local and out of town customers, and the outlook for the future is considered decidedly better. Recently orders for electric and hand elevators have been numerous, as also for special dumbwaiters, and the plant is now running on full time.

There will in all probability be considerable work of interest to the trade develop in the near future in connection with the Philadelphia Navy Yard. Appropriations have been asked for amounting to \$721,000, which carries the approval of the Chief of the Bureau of Yards and Docks. The appropriation includes an item of \$172,600 for central power plant extension; \$430,000 for dredging and \$23,000 for crane extensions. Water system extension is also included in the proposed work.

It is now announced that Edgar V. Seeler, architect for the Curtis Publishing Company, will be ready in about four weeks for estimates for the new building to be erected for that company on Sixth, Walnut and Sansom streets.

Authorization is expected at an early date by the city of York, Pa., for a loan of \$425,000 for the completion of a sewer system and erection of a sewage disposal plant. Hering & Fuller, New York, have prepared the plans for both the disposal plant and sewerage system.

The Baldwin Locomotive Works notes a material improvement in the demand for locomotives. It has recently taken orders for 25 for the St. Louis & Southwestern Railway, 12 for the Lehigh & Hudson River, 4 for the Spanish-American Iron Company, 13 for the Northern Pacific and several smaller orders from different railroads and industrial plants. Some good business is also pending, particularly 30 engines for the Chicago & Alton Railroad. No particular addition in the working forces has been necessitated by the increased volume of business, there still being from 4600 to 4800 employees on the roll, but it is expected that orders will come out more freely after the turn of the year, the booking of which would make it necessary to increase both the working forces and hours.

New England Machinery Market.

BOSTON, MASS., November 24, 1908.

No important change is noticeable in the machine tool market. The dealers are selling about the same amount of machinery. In exceptional cases streaks of very good business are reported, but these are regarded rather as spurts than indicative of a marked improvement. There is a good feeling everywhere among buyers. The larger concerns have not entered the market for anything more than scattering purchases, this important factor in the trade being little, no more conspicuous than it was a month ago. The railroads are yet to be heard from as large customers. A prominent Boston dealer, who has just returned from a Western trip, including Chicago and Cincinnati, reports finding much the same condition everywhere as in Boston. In Cincinnati the machine tool builders are receiving more orders than they were, but there is no radical improvement, according to his observations. In Worcester the large shops make about the same report of their own business, and throughout New England the demand upon the machine tool people does not vary much from this general rule, excepting in a few shops, which have felt the influence of foreign buying in an increasing degree, usually for more or less special equipment.

The supply trade is running along about level with machinery. Customers whose works have been idle or nearly so are now buying in a small way, but those who have been more or less constant purchasers are not increasing the size of their orders to an appreciable extent, excepting in isolated instances.

However, every one in the metal industry is cheerfully watching the advance in the staple products, notably pig iron, and those who have not already experienced a return to better business are deducing a sharper turn for the better in their own lines as the rising market exerts a stronger influence upon buyers.

Manning, Maxwell & Moore, Inc., have taken a lease of the large store at the corner of Oliver and Franklin streets,

Boston, numbered 45 on Oliver and 238 on Franklin, and by January 1 will have moved from the present store, 128 Oliver street. The new quarters will give largely increased accommodations as compared with the existing store. There is 3800 sq. ft. of floor space in addition to the spacious basement. The location is an exceptionally good one, in the heart of the machinery district, and near the post office. The store is already equipped with elevator, and there are three entrances.

The Bixby Turbine Company, Hartford, Conn., has been incorporated in Connecticut, with authorized capital stock of \$50,000, to manufacture suction turbines for cleaning purposes. The company states that it will establish no works, but will have its machines built by outside parties. Jesse W. Bixby is the president, James W. Knox, secretary, and Alfred J. Estlow, treasurer.

The Windsor Machine Company, Windsor, Vt., has sent out invitations to a "Prosperity Ball," which will be held Thanksgiving evening in the addition to the company's works which has just been completed. The invitation announces that Charles A. Moore of Manning, Maxwell & Moore, Inc., will lead the grand march.

W. & B. Douglas, Middletown, Conn., pump manufacturers, are building a one-story addition to their shops, 35 x 53 ft., which will be devoted to storage and shipping.

There is greater activity among the textile mills in increasing manufacturing capacity. One of the greatest enlargements, just announced, is that of the Royal Webbing Company, Providence, R. I., which will erect two new buildings, one 175 x 500 ft., two stories, which will require 1008 looms, the other 100 x 500 ft., two stories, for warpers and spoolers. The Farr Alpaca Company, Holyoke, is to rebuild a mill, one story, 72 x 325 ft. The Woonsocket Spinning Company, Woonsocket, R. I., proposes to build an entirely new plant. Other projects are under way, including additions to equipment for existing buildings. Textile machinery builders are busier, and the prospect is that they will be running at normal capacity in the comparatively near future.

The Hartford Elevator Company, Hartford, Conn., has been incorporated under Connecticut laws, with authorized capital stock of \$50,000, of which \$40,000 will be paid in. Lewis D. Parker, Frank H. Turner and Harris Parker are the incorporators. The company is not ready to make announcement of its manufacturing plans.

The Baker Mfg. Company, Hartford, Conn., has incorporated with \$5000 capital, to manufacture spark plugs. Otto L. Hemming, Gustave F. Hemming, and Max L. Baker are the incorporators.

Barden & Hull, Attleboro, Mass., manufacturing jewelers, report that their machinery was not damaged in the recent fire that caused a loss of \$8000 to their factory.

A street railroad project which when carried out will mean large expenditures for supplies and materials is that of the Norwich, Colchester & Hartford Traction Company. At a recent meeting it was voted to proceed with the initial steps of the work with a view to proceeding with the actual construction of the line when business has returned to normal again. Costello Lippitt is president; Lucius Brown, secretary, and Henry W. Tibbits, treasurer.

The Boston Elevated Railway Company has voted to authorize the issuance of new capital stock not exceeding \$6,650,000, the proceeds of which will be used for the construction of the subway connecting Boston with the city of Cambridge. The undertaking is a large one and will mean the purchase of large amounts of structural and other materials, as well as the usual purchases of equipment.

The consolidation has been effected of the North Adams Gaslight Company, North Adams, Mass., and its affiliated companies into the Massachusetts Lighting Companies, which already controls the lighting and power plants of a number of Massachusetts cities and towns. The properties affected by this latest transfer light the towns of Adams and Williamstown, Mass., and Stamford, Vt., as well as North Adams.

Cincinnati Machinery Market.

CINCINNATI, OHIO, November 24, 1908.

Impressed with the urgent necessity for the exercise of a special conservatism at this time in reflecting conditions in the tool industry, in order to get at the exact conditions, the utterances of manufacturers are weighed with more than ordinary care by writers on machinery matters. Confronted as we are with columns of "boom material" and exaggerated trade interviews filling the daily press, it would seem to be a timely precaution. A careful ante-election estimate, based on a conservative view formed from talks with the representative tool manufacturers in this territory reflects an improved condition at all establishments in the sense of hopefulness; a larger scope to inquiries and an occasional release of some tied-up tool specifications from car and general repair shops and automobile manufacturing concerns.

Aside from this there is little to say about the tool manu-

facturers as a class. Manufacturers of portable electric tools, small electrical power units, ice manufacturing machines and street cars in this field are all rushed with new work and adding men daily.

A feature of very recent transactions among local tool makers has been the consummation of pending or new exchange propositions. Makers of lathes, planers, shapers, drills, grinders, and similar tools, in all of which this field is particularly active, caught up on the wave of ante-election excitement, phenomenal rise of stocks, and general expansion in business, have taken up the subject of mutual shop needs, and many trades have been effected, to the mutual advantage in time saved and other items, of the various parties thereto. Thus a planer manufacturer and a lathe maker have each quickly filled weak spots in the tool room with the product of the other.

In the machine and boiler departments of locomotive and agricultural manufacturers activity is most pronounced and men are being added daily. Word from the Lima Locomotive & Machine Company's big plant at Lima, Ohio, indicates that the establishment is running very nearly its normal equipment of 1200 men.

Replying to an inquiry, President J. S. Ralston of the Ralston Steel Car Company, at Columbus, Ohio, says: "We fully expect to be operating our plant to its fullest capacity not later than the middle of January." Mr. Ralston states that the plant is now running about 70 per cent.

At a meeting last week of the directors of the Buckeye Steel Castings Company at Columbus a plan of construction was indorsed insuring two large steel buildings to be added to the plant equipment in Parsons avenue, work to be commenced the first of the year. One of these structures, designed for the coupler department, is to be 245 x 420 ft., and to correspond in height and general architecture with the others of the group. On the removal of the coupler department from its present location that division will be given over to an extension of the car bolster and steel underframe department. The other new building, of steel construction also, will be known as the core building, and will be about the same size as the new coupler building. Present plans, it is reported, contemplate the rebuilding of two of the furnaces so that their capacity will be doubled. The four large steel buildings constructed during the year are now about ready for occupancy. There is a mutual feeling of satisfaction among the officers and directors that their added facilities are so coincident with the rapidly improving trade conditions.

The plant of the Lodge & Shipley Machine Tool Company, Cincinnati, offers a good example of the potency of these changing conditions at the larger tool making establishments, which exactly a year ago were experiencing the depressing effects of hold-ups and cancellations of orders while a few weeks or months previously they were going at the highest tension possible. The company has experienced to a remarkable degree the improved tone that began with the election of its fellow-townsmen to the Presidency of the United States. On Saturday evening, the 21st, the several hundred employees of the company were tendered a banquet, tables being spread in the lofty new addition of the main building, 90 x 200 ft., which is known as the erecting shop, and which has just been completed. The affair was in honor of the recently formed Lodge & Shipley Mutual Relief Association, and also to celebrate the completion of the new wing; all expenses were borne by the company. Both President Wm. Lodge and Vice-President Murray Shipley were present, and took a conspicuous part in the celebration.

The local manufacturing colony is interested in the presence here of A. W. Cooley and R. B. Campbell of the Tubular Pole & Shaft Company of Wichita, Kan. They have been here several days seeking a location for their concern, which makes poles and shafts of cold drawn seamless steel. They were entertained at the dinner of the Cincinnati Carriage Makers' Club on Friday evening, and both spoke on topics of interest to the trade.

W. B. Ruggles, a member of the Panama Canal engineering staff, spoke before the meeting of the Cincinnati Engineers' Club on Thursday night, the 19th. A paper by Eberhard Mueller on "Photographic Topography in Alaska" was read.

Reports from the Indianapolis plant of the American Car & Foundry Company say that the establishment is now employing a large number of men. The chief work at this time is the repair work on equipment for the Vanderbilt lines, which is being rushed.

The Roots Company, at Connersville, is one of the concerns in this territory which has felt the good results of the times, and the announcement is made that the foundry is now on a five-day per week, 9-hr. schedule. During the fall the establishment worked on a three-day per week schedule.

Extensive banking and iron manufacturing interests are represented in the newly organized Bell Coal & Iron Company of Cincinnati. The following directors were chosen at a meeting held last week: D. E. Richards, Reamy E. Field, George B. Longstreth, Arthur H. Richards and George W. Platt. D. E. Richards was elected president and general manager; George B. Longstreth, vice-president; A. H. Richards, secretary and treasurer, and George W. Platt, counsel.

Mr. Field is the organizer and one of the chief officials of the Hamilton Iron & Steel Company, the new furnace interests at Hamilton, Ohio; Mr. Longstreth is a member of the firm of Field & Longstreth, brokers. The output of four West Virginia and Kentucky mines will be marketed by the new company, which will build extensive yards and terminal facilities this winter.

Government Purchases.

WASHINGTON, D. C., November 23, 1908.

The Isthmian Canal Commission will receive bids until December 14, Circular No. 481, for boilers, with stack and breaching, surface condenser, generator and engine and other supplies.

The Isthmian Canal Commission will soon ask bids for seven Scotch marine boilers.

The Isthmian Canal Commission has postponed the opening of bids for three rapid unloading cranes, under Circular No. 475, from November 24 to December 4.

The following bids were opened November 17 for machinery for the navy yards:

Class 15.—Dynamos—Bidder 61, Crocker-Wheeler Company, Ampere, N. J., \$2102; 89, Diehl Mfg. Company, Elizabethport, N. J., \$1966; 96, Eck Dynamo & Engine Company, Bayonne, N. J., \$2095.86; 118, General Electric Company, Schenectady, N. Y., \$2017; 142, Holtzer-Cabot Electric Company, Brookline, Mass., \$2575; 210, National Electrical Supply Company, Washington, D. C., \$2398; 291, Western Electric Company, New York, \$2178; 315, B. F. Sturtevant Company, Hyde Park, Mass., \$1210.

Class 16.—Ventilating sets—Bidder 89, Diehl Mfg. Company, Elizabethport, N. J., \$5007; 90, D'Olier Engineering Company, Philadelphia, Pa., \$5692; 96, Eck Dynamo & Engine Company, Bayonne, N. J., \$5135.08; 118, General Electric Company, Schenectady, N. Y., \$6069; 142, Holtzer-Cabot Electric Company, Brookline, Mass., \$5132.60; 210, National Electrical Supply Company, Washington, D. C., \$4817.80; 212, Northern Electrical Mfg. Company, Madison, Wis., \$5117; 315, B. F. Sturtevant Company, Hyde Park, Mass., \$4590.

Class 121.—One power feed drill press—Bidder 106, Fairbanks Company, New York, \$625 and \$540; 109, Frevert Machinery Company, New York, \$496; 129, Garvin Machine Company, New York, \$455; 139, Handlan-Buck Mfg. Company, St. Louis, Mo., \$400; 191, Manning, Maxwell & Moore, New York, \$440; 198, Niles-Bement-Pond Company, New York, \$499 and \$443; 34, Baird Machinery Company, Pittsburgh, Pa., \$436 and \$525.

Class 122.—One motor driven hack saw—Bidder 72, James Clark, Jr., Electric Company, Louisville, Ky., \$152; 106, Fairbanks Company, New York, \$104 and \$152.

Class 123.—One universal milling machine—Bidder 20, Brown & Sharpe Mfg. Company, Providence, R. I., \$2357.45, \$2312.45, \$2287.45; 106, Fairbanks Company, New York, \$1750; 191, Manning, Maxwell & Moore, New York, \$2125; 198, Niles-Bement-Pond Company, New York, \$2135 and \$2060.

Class 124.—One No. 2 universal milling machine—Bidder 20, Brown & Sharpe Mfg. Company, Providence, R. I., \$1293.65, \$1269.65 and \$1239.65; 106, Fairbanks Company, New York, \$1345; 191, Manning, Maxwell & Moore, New York, \$1280; 198, Niles-Bement-Pond Company, New York, \$1223.

Class 125.—One motor driven planer—Bidder 106, Fairbanks Company, New York, \$2100; 129, Garvin Machine Company, New York, \$1680; 188, Mark Flather Planer Company, Nashua, N. H., \$1665; 191, Manning, Maxwell & Moore, New York, \$1325; 198, Niles-Bement-Pond Company, New York, \$1535 and \$1685; 280, Vandyck-Churchill Company, New York, \$1510.

Class 126.—One shaper—Bidder 106, Fairbanks Company, New York, \$996 and \$1110; 109, Frevert Machinery Company, New York, \$974; 129, Garvin Machine Company, New York, \$875 and \$920; 188, Mark Flather Planer Company, Nashua, N. H., \$705; 189, Motley, Green & Co., New York, \$683.55; 191, Manning, Maxwell & Moore, New York, \$915 and \$810; 198, Niles-Bement-Pond Company, New York, \$890; 231, Queen City Machine Tool Company, Cincinnati, Ohio, \$825; 280, Vandyck-Churchill Company, New York, \$715.

Class 127.—One motor driven shaper—Bidder 106, Fairbanks Company, New York, \$768 and \$868; 129, Garvin Machine Company, New York, \$765 and \$805; 188, Mark Flather Planer Company, Nashua, N. H., \$640; 189, Motley, Green & Co., New York, \$624.75; 191, Manning, Maxwell & Moore, New York, \$550; 198, Niles-Bement-Pond Company, New York, \$712; 231, Queen City Machine Tool Company, Cincinnati, Ohio, \$750; 280, Vandyck-Churchill Company, New York, \$490.

Class 128.—One radial drill press—Bidder 106, Fairbanks Company, New York, \$904 and \$1000; 109, Frevert Machinery Company, New York, \$764; 191, Manning, Maxwell & Moore, New York, \$920; 198, Niles-Bement-Pond Company, New York, \$923 and \$867; 280, Vandyck-Churchill Company, New York, \$835.

Class 131.—One guillotine frame shear—Bidder 63, Cleveland Punch & Shear Works, Cleveland, Ohio, \$2945; 149, Hilles & Jones Company, Wilmington, Del., \$2634; 198, Niles-Bement-Pond Company, New York, \$3053; 211, New Doty Mfg. Company, Janesville, Wis., \$2146.

Class 132.—Two polishing machines and one exhaust fan—Bidder 109, Frevert Machinery Company, New York, \$460.

Class 151.—One surface condensing plant—Bidder 281, Vermilye & Power Company, New York, \$3770; 286, Wheeler Condenser & Engineering Company, Carteret, N. J., \$3370.

Class 161.—Exhaust system—Bidder 10, Allington & Curtiss Mfg. Company, Saginaw, Mich., \$2000; 83, Dixie Mfg. Company, Baltimore, Md., \$1982; 252, Sterling Blower & Pipe Mfg. Company, \$2295.

Class 265.—Pneumatic hammers and drills—Bidder 58, Columbus Pneumatic Tool Company, Columbus, Ohio, \$389.40; 59, Cleveland Pneumatic Tool Company, Cleveland, Ohio, \$371.40; 70, Chicago Pneumatic Tool Company, New York, \$450; 151, Ingersoll-Rand Company, New York, \$389.40; 152, Independent Pneumatic Tool Company, Chicago, Ill., \$450.60.

The following bids were opened November 14 for installing a coal and ash plant at the central power plant, navy yard, Charleston, S. C.:

Item 1, price for coal handling apparatus in accordance with plans and specifications; 2, price for ash handling apparatus. Penn Bridge Company, Washington, D. C., item 1, \$19,574; 2, \$7950; combined plants, \$25,956 and \$21,988.

Guaranty Construction Company, New York, bid A, item 2, \$16,970 for 200 tons capacity and \$25,230 for combined coal and ash handling plant; bid B, item 2, \$19,590 for 250 tons capacity and \$27,848 for combined coal and ash handling plant; bid C, item 2, \$21,930 for 350 tons capacity and \$30,188 for combined ash and coal handling plant of 250 tons capacity.

Conveying Machine Company, New York, item 1, \$19,934, alternate \$18,116; 2, \$5860, alternate \$5780; for combined coal and ash handling plant, \$23,184, alternates \$24,748 and \$19,650.

G. & W. Mfg. Company, New York, item 1, \$20,887, alternate \$20,453; 2, \$7900.

George W. McCaslin, New York, item 1, \$17,539.

Belmont Iron Works, Philadelphia, Pa., item 1, \$20,895; 2, \$7990.

Darley Engineering Company, New York, item 2, \$7500.

Link-Belt Company, Nicetown, Philadelphia, Pa., item 1, \$16,215; 2, \$8195.

Interstate Engineering Company, Bedford, Ohio, item 1, \$14,420.

Wm. J. Haskins, New York, item 1, \$16,000; 2, \$7000.

Exeter Machine Works, Pittston, Pa., item 1, \$22,000; 2, \$7975.

C. O. Bartlett & Snow Company, Cleveland, Ohio, item 1, \$20,100; 2, \$4870, alternate \$8823.

The following bids were opened on November 12 for machinery for the Marine Hospital Service, Washington, D. C.:

Item 1, one 5-hp. motor and belting; 2, one lathe; 3, drill; 4, one pipe machine. M. Du Perow, Washington, D. C., item 1, \$268.46; 2, \$195; 3, \$108.

National Electrical Supply Company, Washington, D. C., item 1, \$319.90.

Fairbanks Company, Baltimore, Md., item 1, \$298.15; 2, \$235; 3, \$148.50; 4, \$588.

Bagnall-Keener Mfg. Company, Edwardsville, Ill., item 4, \$430.50.

D. Saunders & Son, Yonkers, N. Y., item 4, \$579, alternate \$413.

Crane Company, New York, item 4, \$462.50, alternate \$600.50.

Thomas Somerville Company, Washington, D. C., item 4, \$505.96.

Bids for machinery for new lamp shop at the lighthouse, Tompkinsville, N. Y., were opened November 10, as follows:

Hemphill Engineering Company, New York, \$9686, accepted; Lewis H. Woods, New York, \$9770; Edwin Burnham, New York, \$10,770, \$11,330 and \$11,720; Griscom-Spencer Company, New York, \$11,768; F. D. Smith Company, New York, \$11,950; Westinghouse, Church, Kerr & Co., New York, \$11,997; Watson, Flagg Engineering Company, New York, \$12,500 and \$14,088; Chas. F. Brown, New York, \$12,734.

The following bids were opened on November 4 by the engineer of the twelfth lighthouse district, San Francisco, Cal., for a gasoline hoisting engine:

Union Gas Engine Company, San Francisco, Cal., \$585, accepted; Western Gas Engine Company, San Francisco, Cal., \$734; Fairbanks, Morse & Co., San Francisco, Cal., \$745; Harmon, Ricard & McCone, San Francisco, Cal., \$750; Corliss Gas Engine Company, San Francisco, Cal., \$725; Compressed Air Machinery Company, San Francisco, Cal., \$760; Fairbanks, Morse & Co., San Francisco, Cal., \$655; Standard Gas Engine Company, Oakland, Cal., \$691.75.

Under bids opened September 1 for machinery for the navy yards, Manning, Maxwell & Moore, New York, have been awarded class 19, one planing machine, \$1640.

Under bids opened September 29 for machinery for the navy yards, Henshaw, Bulkley & Co., San Francisco, Cal., have been awarded class 11, one shaper, \$1030.

Under bids opened October 26, Circular No. 472, for machinery for the Isthmian Canal Commission, Fox Brothers & Co., New York, have been awarded class 2, one plate straightening machine, \$986.32.

The following awards have been made for machinery for the Isthmian Canal Commission, bids for which were opened November 2, Circular No. 473:

Detroit Hoist & Machine Company, Detroit, Mich., class 14, five pneumatic geared hoists, \$1014.

Handlan, Buck Mfg. Company, St. Louis, Mo., class 16, one combined hand and power pipe threading and cutting machine, \$792.75.

Motley, Green & Co., New York, class 17, one geared shaper, \$458.

Cincinnati Electric Tool Company, Cincinnati, Ohio, class 18, one motor driven grinder, \$29.80.

United States Electrical Tool Company, Cincinnati, Ohio, class 19, eight electric drills, \$640.

Under bids opened November 10 for machinery for the navy yards, the B. F. Sturtevant Company, Hyde Park, Mass., has been awarded class 11, two ventilating fans and repair parts, \$571.10.

The Bray Continuous Sheet Process.—The United States Circuit Court of Appeals for the third circuit, sitting at Philadelphia, has handed down a decision, written by Judge Buffington, reversing the decision of Judge Archibald in the Circuit Court of the United States for the Western District of Pennsylvania, in the suit of P. E. Donner against the American Sheet & Tin Plate Company, for infringement on a patented continuous sheet mill. By this decision, the continuous sheet mills operated by the American Sheet & Tin Plate Company, at its Sharon and Monongahela works, do not infringe the Donner patent, the claim of the Donner patent in the suit being held invalid by the higher court.

HARDWARE

THE decadence of the smaller towns and villages is a substantial loss to the country as a whole, and to the sections which are thus deprived of the advantage of having live, prosperous and up to date commercial and social centers within easy reach, this consideration makes it the part of wisdom to cultivate a local spirit in all the smaller communities, so that whatever can be done in the way of increasing their attractiveness, business importance and general welfare should be taken hold of with intelligent and united effort. How this can best be accomplished, the lines on which such efforts can most effectively be directed, are matters well worthy of the earnest attention of all who have the best interests of rural communities at heart.

In this connection it will be well to remember the bearing of this problem on the question of the advisability of establishing a merchandise or parcel post. There are many arguments against the project, but the one to which there is no answer is the fact that it would be directly and seriously in opposition to the welfare of the retail merchants of the country, excepting only the department stores and catalogue houses of the large cities. The establishment of a parcel post in general and on the rural routes in particular would be a severe blow to retail merchants generally. This is recognized by them usually in a timid, inactive way. They should speak out and let their opposition be known. They should let it be understood that a merchandise or parcel post, as it was successful as a transportation scheme for the carriage of merchandise, would in precisely the same measure be disastrous to retail interests, and that it would in the same degree militate against the welfare of the towns and villages. They should see to it that this view of the case is presented in their local papers and through the press at large. They should bring out the fact that the parcel post is directly in the interest of the trade of the great cities and directly against the trade of the towns and villages. They should make clear that while the farmer might for a time save a little on his purchases in the far off city, he would in the long run be the loser. For the dwindling trade of the rural communities would mean their gradual deterioration and, perhaps, their ultimate disappearance. The farmer who is surrounded by dead or decadent towns is a partner in their misfortune.

The indications are becoming more and more clear that the form of merchandise post which will be urged upon Congress at the next session will be that on the rural routes, limiting the service, as well as may be, to packages mailed on such routes, or at the post office from which they start. The less energetic pressure for the time being for a general parcel post measure may be regarded as a recognition of the force of the objections which hold against it, in view of which there seems to be little probability that the scheme will have sufficient supporters in Congress to encourage the expectation that it can be enacted into law at the coming short session. Very earnest efforts, however, will doubtless be made to secure the passage of a law establishing a merchandise service on the rural routes under the specious plea that this form of parcel post will be to the interest of the retail merchants throughout the country, because giving to them facilities for the carriage of merchandise on

the rural routes emanating from their towns, while such facilities are denied to merchandise in the mails at large. It is therefore argued that such a form of parcel post would be advantageous to the smaller communities.

The opponents of the scheme should lose no time and spare no effort in combating this insidious attempt to establish a parcel post, even on a limited scale. The objections to the proposal should be emphasized and enforced:

That it is contrary to public policy for the Government to go into the business of transporting merchandise.

That a large expenditure would be required to furnish the rural carriers with the necessary outfit and conveniences for the carrying of merchandise on their routes.

That it would be impracticable to limit the service as proposed to merchandise originating at the offices from which the rural routes start.

That it is not unlikely that the proposed law would be pronounced unconstitutional as class legislation.

That there is great danger that there would be a gradual enlargement of the service so that a parcel post on the rural routes would be an entering wedge, and prepare the way for a general merchandise post.

That the carriage of merchandise in the mails would tend to build up the trade of the catalogue houses, and to extend mail order business with the large cities to the injury of merchants generally throughout the country.

That the present arrangement by which carriers deliver packages without charge, or at a nominal charge, is more advantageous to the retail merchants than would be the proposed change in the law which would require a regular postal charge in all cases.

That the proposed service IS NOT DESIRED BY THE RETAIL MERCHANTS OF THE COUNTRY, who regard it as dangerous, and diminishing instead of increasing their present facilities.

The important matter at this juncture is to have brought to the attention of the Post Office Department and to Congress, as well as to the public at large, the fact that THE RETAIL MERCHANTS THROUGHOUT THE COUNTRY DO NOT DESIRE THE RURAL PARCEL POST, and do not regard it as in their interest, but with large substantial unanimity are opposed to it. If the retail associations in Hardware and other lines desire to be useful in a practical way in combating the parcel post they can do no more effective work than find means to bring out, and to bring out, without delay, an emphatic expression of the opinion of local retail merchants on this point. If the retailers generally desire a rural parcel post they are likely to have an opportunity to enjoy it. If, on the other hand, they do not want it there should be no loss of time in making it plain. Resolutions in convention are

not sufficient. There should be protests from merchants in every town and village. In this work the Hardware associations may take a leading part. If they do not do this it will be to miss a great opportunity. BUT WHAT THEY DO SHOULD BE DONE IMMEDIATELY.

Condition of Trade.

While there has been during the past two or three weeks an increase in the confidence which has been gradually growing and in the volume of current business, there is no material change in the general features of the situation either in the matter of price or in the movement of merchandise. Among the general indications which are significant of an improved condition throughout the country at large are the increase in the volume of bank clearings which approach those of two years ago; greater activity on the railroads with hints that a car shortage may possibly be encountered; and a heavier movement in export trade, which in dollars and cents aggregates a higher figure than any recent month, while had it not been for the low price of cotton, the valuation would have made a new record for the month of October. With this there has been a marked confidence that better times are at hand, which in the Iron and Hardware line has resulted in more liberal placing of orders for the raw material and for the finished goods. There is also a more general employment of labor, and Hardware manufacturers agree substantially in reporting a much improved state of things in their factories, not a few of them running again on full time. During the past week the changes in price were few, but there is a good deal of revision of prices going on, resulting sometimes in the making of lower quotations. It is not unlikely too, that the increasing probability that there will be a real revision of the tariff will tend to make merchants and manufacturers cautious, not knowing how much effect this will have on the movement of current business. The general tone, however, is confident and the end of the year is approaching with conditions which are full of promise.

Chicago.

A steady, healthy, but not over rapid growth, is a characteristic feature of the present situation, in so far as it relates to the development of trade in Hardware lines. True, the movement is rather too slow to wholly satisfy the more impatient, but it seemingly has back of it forces strong enough to carry it forward in a safe conservative way that makes for permanency rather than uncertain haste. Manufacturers of Hardware goods are generally busier, and factories are more fully engaged than they have been at any time within a year. This is particularly true of those making Builders' Hardware, the demand for which continues to increase. Distributors are finding it necessary to adopt a little more forehanded policy in ordering for stock assortments, not only because of present demand, but to provide for prospective requirements somewhat more liberally than they have been doing. Within the last week or two, orders for Sheets have been coming out more freely, as a result of which jobbers have been recently obliged to place orders for hurried shipments for both Black and Galvanized Sheets. No notable changes have taken place in existing price schedules, which are, however, not being maintained in all lines with satisfactory regularity. Conditions in this respect are on the whole somewhat improved, and as the volume of business increases greater steadiness in values will doubtless prevail. Actual advances are few, though manufacturers of some of the less highly finished lines complain of inadequate profits on the basis of present prices. While it may be found advisable to make some readjustments before long, indications do not point to any radical revisions in the imme-

diate future. Wire products still maintain the lead in the movement of heavy staples, and the steady flow of orders for Wire Nails and Fencing demonstrates the existence of a practically normal consumption. Even Cut Nails, which all through the year have been extremely dull, are beginning to show signs of greater activity and firmness. Jobbers report a fairly satisfactory trade in Holiday Goods, a feature that is each year becoming more prominent in the Hardware trade. As a result of special efforts directed to this end, the advantages of special displays of such goods, and the profits derived therefrom, are getting to be better appreciated, as is evidenced by the show windows and the advertisements of retail stores.

NOTES ON PRICES.

Wire Nails.—Demand upon the mills is showing an increase, both in the way of new business and specifications on contract orders. While near-by requirements are being covered at the present time it is with increased confidence in the stability of the market, so that shipments aggregate more than at any time within a year. According to reports, regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers.....	\$1.95
Carload lots to retail merchants.....	2.00
Less than carloads to jobbers.....	2.00
Less than carloads to retail merchants.....	2.10

New York.—Demand in the local market continues comparatively light and only for near-by needs. Nails are held on the basis of \$2.30 per keg in small lots at store, but some sellers are occasionally inclined to shade this figure.

Chicago.—The mills report a satisfactory condition in the demand for Wire Nails, with every prospect of a steady though gradual increase in volume. Buyers are placing orders with more confidence in the general stability of conditions, both as respects sustained consumption and steadiness of prices. Indications are not lacking which point to the beginning of a stock buying movement; a good many orders, in fact, are already being placed with a view to fortifying depleted stocks against future demands. Prices, we are advised, are being absolutely maintained. Quotations are as follows: \$2.13 in car lots to jobbers, and \$2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New orders placed for Wire Nails are reported as being more plentiful and larger in volume, while specifications against contracts are also coming in very freely. Output and shipments of Wire Nails by the mills this month will show a material increase over October, and the belief is growing stronger in the trade that there will be no reduction in prices. It is said that orders being entered by the Wire Nail mills are now very close to actual capacity. This is the first time that this condition has prevailed in more than a year, and the general Wire Nail trade is referred to by the manufacturers as being quite satisfactory. It is stated that regular prices are being absolutely maintained. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$1.95
Carload lots to retail merchants.....	2.00

Galvanized Nails are quoted at \$1 over the price of the regular Nails.

Cut Nails.—At a meeting of the Eastern Cut Nail Association, held on November 18, the former price of Cut Nails was reaffirmed. Manufacturers reported an increasing demand, some having booked enough business to keep them busy until the first of the year. The market, which has shown some weakness, is reported as being stronger under present conditions. The general price for Steel Cut Nails is \$1.80, base, per keg, f.o.b. Pittsburgh, for less than carloads, and \$1.75 for carloads and larger lots, with occasional concessions of 5 cents from this figure. In the Western market Iron Cut Nails are held at

an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

New York.—The local demand for Cut Nails continues moderate, orders being for small quantities. Steel Cut Nails are held on the basis of \$2.15 per keg for small lots at store, but this price is not strictly adhered to by all sellers.

Chicago.—The general tendency of the demand for Cut Nails is of a broadening character, and orders are gradually increasing, both in size and number. Along with these signs of betterment are noticed greater firmness of prices, which are now held fairly even. While more liberality is shown in purchases for stock, buyers are not going far ahead of current needs. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, \$2.08; Steel Cut Nails, \$1.98.

Pittsburgh.—New orders being placed for Cut Nails are a little more plentiful and slightly larger in volume, but, as a rule, consumers are placing orders mostly for small lots and actual requirements. We are advised that the tone of the market is strong, and regular prices are being maintained. The general market is \$1.80, base, per keg, f.o.b. Pittsburgh, but \$1.75 is made on carloads and over. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

Barb Wire.—A larger amount of business is being received at the mills than usual at this season, the prolonged mild weather stimulating demand, which includes new orders and specifications on contracts. According to reports regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.10	\$2.40
Retailers, carload lots.....	2.15	2.45
Retailers, less than carload lots.....	2.25	2.55

Chicago.—The volume of business coming out is more generous and is being prolonged later in the season than was anticipated a few weeks ago. It is now but a short time until trade opens in the South, which will give fresh impetus to the movement. The outlook for spring business is regarded as quite encouraging. Prices are being maintained without deviation. Quotations are as follows: Jobbers, Chicago, car lots, Painted, \$2.28; Galvanized, \$2.58; to retailers, car lots, Painted, \$2.33; Galvanized, \$2.63; retailers, less than car lots, Painted, \$2.45; Galvanized, \$2.75; Staples, bright, in car lots, \$2.25; Galvanized, \$2.55; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—The continued mild weather has had the effect of stimulating demand for Barb Wire, a fair amount of new orders still being received by the mills, while specifications on contracts are reported as coming in quite freely. This is the off season in the Barb Wire trade, and more new business is being placed than ordinarily is the case. The mills advise us that regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.10	\$2.40
Retailers, carload lots.....	2.15	2.45
Retailers, less than carload lots.....	2.25	2.55

Plain Wire.—Considerable activity is noted arising from orders and specifications on contracts received from Wire Fence manufacturers, and new business placed by merchants. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....	\$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35	
Galvanized.....	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95	

Chicago.—Both new orders and specifications against old ones are being placed in fair volume. Manufacturers, especially the Fence makers, are ordering ahead in a way that indicates confidence in good demand for their products and a maintenance of values. Prices are reported as unyieldingly firm. We quote as follows: Car lots to jobbers, \$1.98, f.o.b. Chicago, and to retailers, \$2.05.

Pittsburgh.—Manufacturers of Wire Fencing are placing quite liberal orders for Fence Wire and specifications against contracts are being received by the mills in good volume. Manufacturers of Plain Wire expect a steadily growing demand and dealers are placing orders in larger volume than for some time in the belief that prices will be maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....	\$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35	
Galvanized.....	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95	

Shovels.—Notice was sent out by a number of leading Shovel manufacturers a few days ago announcing a withdrawal of prices. Although the Shovel market has not been in particularly good shape, some members of the trade supposed that as usual the withdrawal of quotations presaged an advance. The houses referred to, including the members of the Ames Shovel & Tool Company, are announcing readjustments representing an irregular but general decline on all grades of Shovels.

Galvanized Ware.—An advance of 5 per cent. on light Galvanized Pails and Tubs has been made by leading manufacturers to take effect at once. There is an equal advance on Coal Hods, effective on new business, which, however, because of existing contracts is not likely to be felt in the market until the first of the year. Pails and Tubs may now be quoted at a discount of 10, 7½, 5 and 5 per cent.

Picks and Mattocks.—While leading manufacturers have made no positive change in their general quotations on Picks and Mattocks it is reported that some extreme concessions to the largest trade have been withdrawn. These lines, together with other heavy tools, may be referred to as firm.

Auger Bits.—Many manufacturers of Auger Bits express a desire to advance prices on this line, asserting that it has long sold on an unreasonably low basis. This disposition is reflected by increased firmness in quotations, although as yet few if any actual advances have been made.

Wrenches.—An improvement most welcome to the manufacturers has at last taken place in the market for Agricultural Wrenches, which have been selling at prices generally agreed to be as low as cost of production, if not a shade lower. Leading manufacturers have advanced their extreme quotations from 10 to 10 and 5 per cent., and the discount of 80 and 10 per cent. may be mentioned as representing the market on case lots.

Leather Belting, Lace Leather, &c.—Attention has recently been called in these columns to the strong tone of the Leather market and the upward tendency in prices on Leather Belting and Lace Leather. Last week a conference was held, attended by a number of prominent manufacturers, who while they made no concerted advance, expressed the belief that their prices on standard grades of Belting must be advanced fully 10 per cent. to compensate them for the increased cost of hides. Such advances, varying somewhat according to the grade of goods bought and the price previously paid, are shown in recent quotations to the larger trade. An equally strong tone is observed in Lace Leather, Cut Lace now showing a further advance of close to 10 per cent., and Sides being about 2 cents higher. The market on Cut Lace may be represented by a discount of 45 to 50 per cent., and on Sides by a quotation of 25 cents per square foot.

Sash Weights.—Several Sash Weight manufacturers report an increasingly satisfactory condition of things in their line and the situation is regarded as more favorable than for some time. The moderate advances in price recently made are on the whole well maintained and in some sections at least there has been a further strengthening, reflected in further slightly advanced quotations. In view of the general condition of the Iron market manufacturers are conservative about making future contracts and are anticipating an excellent demand in the spring.

Brass Cocks, &c.—Responding to the advance in Cop-

per higher prices are being announced by some manufacturers for such goods as Brass Valves, Cocks, Compression Bibs, &c. Sheets, Wire and Rods remain without change.

Window Glass.—The past week is regarded as an uneventful one in the Glass market. Demand from factory has not materially fallen off, but hand to mouth buying is more in evidence than the placing of good sized orders. The question of the manufacturers' organization is still hanging fire, and, it is said, with about equal chances of success and failure. A meeting of the Window Glass manufacturers who were appointed as a committee on organization was held last week, and if considered advisable it is expected that a general meeting of the manufacturers will be called within two weeks to decide whether an organization can be formed, or whether the work will have to be dropped. The American Window Glass Company's prices are 90 and 35 per cent. discount on Single and 90 and 40 per cent. discount on Double Strength Glass. Hand plants are following these prices fairly well, but it is learned that sales from $2\frac{1}{2}$ to 5 per cent. below these prices have been made. Window Glass has been quoted in the West as low as 90 and 40 per cent. discount for Single, and 90 and 45 per cent. discount, for Double Strength. Should the forming of the organization fail, it will mean lower prices until enough factories are forced out of blast to curtail production until it is somewhere near the demand.

Rope.—There is perhaps not quite as much activity in the Cordage market as for the past two weeks, and buyers are confining their purchases to present necessities. Manufacturers are using the mails liberally in sending out circulars quoting prices, which rather indicates that they are not entirely confident as to the future of the market. Considerable competition is in evidence when a good-sized prospective order is in the market. The market is reasonably strong at the following quotations for Rope, 7-16 in. in diameter and larger: Pure Manila, $8\frac{3}{4}$ to 9 cents; Pure Sisal, $6\frac{3}{4}$ to 7 cents. Mixed grades of both kinds grade down in price according to quality. Jute Rope, $\frac{1}{4}$ -in. and up, No. 1, $6\frac{1}{2}$ to $6\frac{3}{4}$ cents; No. 2, 6 to $6\frac{1}{4}$ cents.

Linseed Oil.—The price of Flax Seed has fluctuated during the week, but not enough to change the price of Oil. The crushers are reported as having comparatively little Seed on hand, and as the time for the close of navigation is not far distant crushers, particularly Eastern ones, are anxious to increase their stock of Seed. This, with the market under strong control, is set down as the cause of high priced Seed and Oil. A fair call for deliveries on contract orders and new business covering present requirements, are reported in this market. Quotations for 5-barrel lots are as follows: State and Western Raw, 47 cents per gallon; City Raw, 48 cents per gallon. Boiled Oil is 1 cent advance on Raw.

Spirits Turpentine.—Owing to increased activity in buying in the Savannah market prices at this point have advanced 1 cent per gallon. Local buying has been light at the advance. The New York market is represented by the following quotations: Oil Barrels, $42\frac{1}{2}$ to 43 cents; Machine Made Barrels, 43 to $43\frac{1}{2}$ cents per gallon.

S. J. GUN, C. W. SPROULL AND T. W. SHANDS have bought the business of the S. J. Thomas Company, Gainesville, Fla., and will continue it under the name of Gainesville Hardware Company. The officers are as follows: S. J. Gun, president; C. W. Sproull, vice-president; T. W. Shands, secretary and treasurer. Mr. Gun is president of the Gainesville National Bank and Mr. Sproull was formerly of the Anniston Hardware Company, Anniston, Ala. The new company will engage in the jobbing business and cover the State of Florida.

George A. Miller has bought out the business of the Giles-Montgomery Hardware Company, Reidsville, N. C. Mr. Miller will continue the business in the old store building which has been leased for a term of years.

W. M. Tilley & Co., Berkley, Va., were recently damaged by fire in their Sash, Door, Blind, Hardware and

Glass department. The loss was about \$8000, on which there was \$6000 insurance. The fire did not affect the firm's Planing Mill and Lumber stock.

Hardware Organizations.

Idaho Retail Hardware and Implement Association.

The fifth annual convention of the Idaho Hardware and Implement Dealers' Association, J. F. Cook, secretary, Boise, will be held in that city on Friday and Saturday, December 11 and 12. An interesting programme has been prepared, and the meeting promises to be very well attended.

Texas Retail Hardware and Implement Association

Owing to the unusual number of important questions affecting the welfare of Hardware and Implement men which will come up for discussion and action at the next convention of the Retail Dealers' Hardware and Implement Association of Texas, to be held at Dallas, January 19, 20 and 21, the gathering promises to surpass in interest and attendance any previous convention of the association. During the period since the last meeting the membership of the body has also largely increased, indicating that the merchants of the State are alive to the desirability of actively supporting the organization which has been built up in their behalf. In connection with the convention there will be an exhibition by manufacturers and jobbers in Hardware, Implements, Vehicles and kindred lines, and J. W. McManus, Dallas, the secretary, will be pleased to hear from any who desire to be advised as to spaces and terms. It is stated that the exhibit at the last meeting was such a marked success that those displaying goods were very much impressed with the value of this method of bringing their offerings to the attention of the trade. It is possible that the privileges of the association and its insurance exchange may be extended to the merchants of Louisiana, Arkansas, Oklahoma and New Mexico, and this matter will be decided at the January convention. If the plan is carried out it is not unlikely that the name of the association will be changed, probably to the Southwestern Retail Dealers' Hardware and Implement Association.

Ontario Retail Hardware Association.

The fourth annual convention of the Ontario Retail Hardware Association, Weston Wrigley, Toronto, secretary, will be held at Hamilton, on February 9, 10 and 11 next. The Waldorf Hotel will be the headquarters. At previous conventions no encouragement has been given to manufacturers to make exhibits, but this time they will be invited to do so. The meeting at Hamilton promises to be the best in the history of the association. The Wood-Vallance Company, wholesale Hardware, will entertain the visitors at a banquet, and perhaps also at a theatre party, while the manufacturers of Hamilton, which is the leading Hardware manufacturing city of Canada, will throw their factories open to the visitors.

Nebraska Retail Hardware Association.

In a circular issued by J. Frank Barr, secretary, Lincoln, Neb., particulars are given concerning the Hardware exhibition which will be held in connection with the annual meeting of the Nebraska Retail Hardware Association at Omaha, February 16, 17, 18 and 19. The Omaha Auditorium has been secured for the exposition. It is stated that two years ago spaces were sold without any framework or booth construction and that last year the association erected the framework and charged extra for the decorations. This expense has now been eliminated, for in order to make the booths of uniform height and appearance, thus adding to the attractiveness of the exhibition, the association has this year decided to erect and decorate the booths complete, for which no extra charge will be made. The circular issued by Mr. Barr also presents a diagram of the main floor of the auditorium, showing the location of nearly 100 spaces, which are priced at from \$15 to \$40, according to dimensions and situation.

The Griswold Company.

THE DILLON-GRISWOLD WIRE COMPANY, Sterling, Ill., has reorganized under the name of the Griswold Company. All of the bonds and stock of the old company has been retired, and \$400,000 new stock has been issued in lieu thereof. The new stock is divided into \$275,000 preferred and \$125,000 common. The Board of Directors now consists of Henry Burden, II, Sanborn G. Tenney, E. D. Worster, Robert McCosh and Chester Griswold. The officers are: Chester Griswold, president and treasurer; Henry Burden, II, vice-president, and Robert McCosh, secretary. The output of the plant has been doubled. The company contemplates enlarging its line and will place several new articles on the market in the near future.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM **REA & HART**, who have purchased the business of W. W. Kinser, Promise City, Iowa, covering Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting Goods, Buggies and Wagons.

FROM **HAMBURG SUPPLY HOUSE**, J. L. Balthaser, proprietor, Hamburg, Pa., who is starting in the Hardware, Farm Implement, Oil, Paint, Glass, Cement and Lime business.

FROM **DEWANE BROTHERS**, who will open a new Hardware store in Maribel, Wis.

FROM **F. R. TILLOTSON**, Wyoming, N. Y., who has just completed a new store building, 30 x 60 ft. Mr. Tillotson was burned out several months since. He carries a line of Hardware, Stoves and Furnaces.

AN INTERESTING VISITOR to the Vehicle plant of the Studebaker Bros. Mfg. Company, South Bend, Ind., recently, was George Myers of Ashland, Ohio, who more than half a century ago worked with J. M. Studebaker in the crossroads wagon shop six miles out in the country from Ashland. Mr. Myers did the woodwork and Mr. Studebaker the ironwork on the original Studebaker wagons. In 1854, when the Studebakers decided to move to Indiana, they urged Mr. Myers to accompany them. Had he done so, one of the largest pump and hay tool industries in the world might not have been located at Ashland, Mr. Myers being the father of Frank E. and Philip A. Myers, who constitute the firm of F. E. Myers & Bro. Mr. Myers is in his eighty-sixth year, and hale and hearty though he is, it would be no easy task for him to walk through the different departments of the great Studebaker plant, but this was not necessary, as Mr. Studebaker showed him everything from an electric runabout which was run through the center aisle of every floor and from one floor to another on the elevators, being finally run out on the roof of one of the structures, from which a fine view of South Bend and the surrounding territory was obtained.

THE INSTANTANEOUS GLUE CONVERTER COMPANY, Cincinnati, Ohio, has just been incorporated with a capital of \$40,000 by Albert Kleybolte, C. M. Zimmerman, T. L. Drimmie and F. X. Lang, to manufacture a new glue converter, patents for which have been applied for by C. M. Zimmerman, the inventor. The device is intended to supplant entirely the use of the old fashioned glue kettles. The converter process consists in soaking the proper proportions of dry glue and water and placing the jelly thus formed in the converter, where the direct action of live steam reduces the jelly to liquid glue ready for use at the

rate of a gallon every five minutes. The special advantages claimed are saving in glue from evaporation and increasing its strength through avoidance of boiling. The glue is filtered in the process, which insures its cleanliness.

Trade Items.

THE FAETH IRON COMPANY, Kansas City, Mo., has purchased a site at 1065 West Eighth street upon which, early next spring, it will erect three large buildings which will include a six-story and basement warehouse 100 x 111 ft.; a one-story steel warehouse 100 x 100 ft., and an additional three-story building for manufacturing purposes 50 x 80 ft. Present plans contemplate the use of reinforced concrete and fireproof construction for these buildings.

AFTER a career of 38 years as manufacturers and jobbers of Household Utilities, Wiester & Co., 2981-2989 Folsom street, San Francisco, have sold their business and retired. The purchaser, Herbst Mfg. Company, will continue it in connection with their production of Sheet Metal and Copper Specialties at 1939 Mission street, San Francisco.

THE MARYLAND OILED CLOTHING COMPANY, 2405-2411 Eastern avenue, Baltimore, Md., whose foreign representatives are C. K. Turner & Son, 116 Broad street, New York, is manufacturing a full line of Oiled Clothing in black, yellow and brown, in slickers and long coats, pommel slickers, motormen's coats, medium and frock coats and jackets, overalls, apron and string pants, bats in numerous styles, wagon boots, horse covers, &c. The goods are branded Terrapin Special, Terrapin Maryland and Neptune, according to quality, the Terrapin Special being the highest grade which in khaki and black are in use in the Philippine and other services by the United States army.

C. H. SPOTTS, formerly manager of the Paint department, and **Walter Ferris Swearer**, formerly assistant at the general offices of the Joseph Dixon Crucible Company, Jersey City, N. J., have become associated with the Protectus Company, manufacturer of Paint, Mr. Spotts as secretary and Mr. Swearer as New York manager, with offices in the Hudson Terminal Building. The Philadelphia headquarters are located in the North American Building.

AMIOT, LECOURE & LARIVIERE, INC., Montreal, Que., have been succeeded by Lariviere, Inc. This change in name does not involve any change in the direction or administration of the company's affairs, Fred. C. Lariviere continuing as president. This business was established in 1889 and has been exceptionally successful.

G. C. Farnsworth, Denver, Iowa, is disposing of his stock of Hardware by retail, preparatory to retiring from business.

J. H. Sheldon, Burlington, Kan., has moved his Hardware, Stove, Tinware, Paint, Oil and Sporting Goods stock into new quarters.

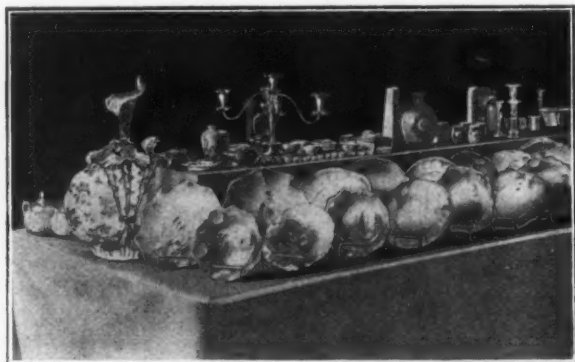
W. T. Jones, Woodstock, Iowa, suffered a loss of \$7000, partly covered by insurance, by the burning of his Hardware stock and store.

Henry W. Luetkemeyer, one of the most prominent Hardware merchants in Cleveland, Ohio, and head of the firm of H. W. Luetkemeyer & Sons, died November 23, aged 79 years. Death was due to old age. Mr. Luetkemeyer was born in Prussia in 1830 and came to this country with his parents when 12 years old. At the age of 19 he came to Cleveland and had been engaged in the Hardware business since that time. He served as a member of the City Council and was quite prominent in banking circles, being one of the founders of the Citizens' Savings & Loan Company and its vice-president until its consolidation with the Savings & Trust Company. At the time of his death he was a member of the Advisory Board of the combined institution, the Citizens' Savings & Trust Company.

Holiday Trade in the Hardware Store.

CHINAWARE DISPLAY ON STORE TABLES.

THE accompanying illustration represents part of a table arranged with Christmas goods at holiday time by the Marion Hardware Company, Marion, S. C. The company carries regularly in connection with its Hardware stock a nice line of domestic and imported China and Ornaments. During the last Christmas season three tables were arranged down the center of the store, one table being given up entirely to the display of China, as shown in the illustration, another to a display of Toilet Articles, and the third to an exhibit of Nickel and



Christmas Table Display in Marion Hardware Company's Store.

plated Ware, such as Chafing Dishes, Five O'Clock Teas, Baking Dishes, Tea and Coffee Pots, Soup Tureens, Ladles, &c.

The counters and showcases on either side of the store were cleared of everything, not likely to be called for during the holiday season, and these were used for the display of Razors and Razor Goods, Pocket Cutlery, Carving Sets and other goods having extensive sale at this time of the year. In conspicuous places around the tables were shown Brass and Wrought Iron Andirons, Fireplace Sets, Fenders, &c.

INCREASING THE HOLIDAY TRADE.

BY FAR WEST.

IT is a dull store indeed into which additional life is not put by the gift-giving spirit that hovers around Christmas. The Hardwareman naturally wishes to avail himself of every opportunity to get all he can out of the holiday business, yet finds himself in doubt just what to do to increase his trade and not carry over a lot of goods that will be unsalable until the next Christmas. He will hardly consider this to be the year to add new lines to any great extent, but will feel more like putting all his energy into stocking those lines that have been tried and found true. Beginning with yourself and your clerks, cultivate cheerfulness assiduously. Don't put any one in the front of the store that cannot smile and have a hearty welcome for the customers. The next step is to make your store smile and have a festive look. This is the time for you to get out your paint pot and go over the shelving and rough stands. It is doubtful if the influence of surroundings is appreciated by all Hardwaremen. They are too apt to think their homes the only places to be made attractive and neglect the appearance of their stores. This is a good time to reverse conditions and make the store as bright as the home, as it is in the store you spend six days of the week and as many evenings. Bring from your seventh day stopping place some of your potted plants in fancy jardineres, and if you have anything in the musical line, if only a music box, bring that also.

If you gather together all the signs and posters the

manufacturers have sent, they can be fastened on frames, which can be roughly made of lath, and then trimmed with holly. These framed posters, if suspended from the ceiling over the showcases,

change the appearance of the store and add greatly to its appearance. By using Stove Pipe Wire and running it from the center to the shelving, on each side of the store, an effective arch is attained. The Wire should be stretched at intervals of about 8 ft. and covered with

holly, then hang from these arches all sorts of articles high enough to be out of reach of customers. One section can be used for hanging Enameled Ware, another for Nickel Plated Ware, another for Aluminum Ware. In fact, this arrangement is just like trimming a Christmas tree. Being out of the conventional it attracts attention and assists your trade in making their selections.

Cutlery will be a line in strong demand, and should be arranged to facilitate selections, at the same time avoid any mixing of stock. For this reason all Pocket Knives should be gathered under uniform prices. One

Arranging Cutlery.

assortment 25 cents, another 50 cents, another 75 cents, and so on through the stock. In displaying Pocket Knives the number should be counted. Following this plan lessens the chance of a customer getting \$1 Knives at a 50-cent price, especially as at holiday times when extra help is usually employed. The plan of gathering together, under uniform prices various goods facilitates sales, but in any arrangement prices should be marked in plain figures.

Especial attention should be given to the arrangement and display of practical presents. It may be thought that everything in a Hardware store is practical, but there are quantities of stuff that are got up especially for gifts. These should be avoided, therefore, in addition to articles above mentioned. Waffle Irons, Meat Cutters, Electric and other Sad Irons should be given a prominent place, instead of being pushed under a shelf. Sleds and boys' Wagons should be displayed so a pile need not be taken down to get at any particular size. If arranged in piles each size should be kept separate. From 7 to 9 o'clock in the morning is usually the quiet

time, when the displayed stock should be rearranged and replenished.

One of the amusements of the people is to go downtown to look at the windows. So the Hardware man who aims to get the most out of the holiday trade will look to his windows. The conventional arrangement is to have the articles arranged so that they rise toward the back or corner of the windows. Getting away from the conventional, a striking arrangement can be made by using a central

Window Dressing.

form rising several feet, which can be easily made in the store. For Cutlery a low packing box serves for a base. On this place a box about 8 or 10 in. square by about 3 ft. high, such as Axes or Iron Miter Boxes come in. Cover these with black or crimson velvet is the richest, but cloth answers very well. Fasten or hang Scissors or Razors on cup hooks. Cover the base with Pocket Knives and in front and around the stand on bottom of the window display Carvers in sets. The top of the stand may be used for Carvers not in cases. The points should rest on the top and the handles extend out and rest on stove pipe wire. A

Monster Skate.

wooden Skate about 3 ft. long may be made at a carpenter shop at small expense and painted in the store with aluminum paint. Hang this in the center of another window display and suspend from it a line of Skates, using as a background for the window plenty of color, mistletoe and holly.

Taking Care of the Cash.

Particular attention should be given to the handling of the cash. All clerks are presumed to be honest and the endeavor should be made to keep them so by not putting temptations in their way. A record system showing the sales of each clerk and the knowledge that every sale they make can be accounted for helps to make them careful.

WINTER GOODS WINDOW DISPLAY.

THE window exhibit reproduced herewith was arranged by M. R. Manhard & Son, Marquette, Mich., during the holiday period last year. The window is 14 ft. long and 6½ ft. deep. Among the articles displayed Snow Shoes were in the largest proportion. The firm manufactures Snow Shoes, for which a ready sale is found, many being shipped into the Northwest Territory. In addition Moccasins and Straps for use with Snow Shoes were shown. There were also Skis, which are handled in connection with the Snow Shoes as skiing is a great pastime in that section of the country.

Other articles which were given a place in the window were Ice Skates, Ankle Straps, Tool Chests, &c. Sleds and Snow Shovels were lined up on the sidewalk outside the window, the whole making a striking and effective display. At the same time the firm used its window on the other side of the entrance for an attractive

private telephone exchange, which is said to be the largest in the city.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

BERGER MFG. COMPANY, Canton, Ohio: 12-page catalogue, envelope size, illustrating a variety of Steel Clothing Lockers; also folder relative to Berger Steel Office Equipment.

POTTER MFG. COMPANY, Geneva, Ohio: Descriptive circular of Garden and Floral Tools.

LAMSON & SESSIONS COMPANY, Cleveland, Ohio: Illus-



Winter Goods Window Display of M. R. Manhard & Son.

display of Nickel Plated Goods, Carpet Sweepers, Fancy Teapots, Granite Ware and Kitchen Utensils generally.

Baker & Hamilton's New Quarters.

POSSESSION has lately been taken by Baker & Hamilton, San Francisco, Cal., of their new establishment, located at 433 to 481 Brannan street, between Third and Fourth. It is believed that with the splendid facilities now enjoyed by the house for the economical handling of Iron Pipe, Hardware, Implements and Vehicles the position of San Francisco as a distributing center will be materially strengthened. The new building is within one block of the Southern Pacific, four blocks of the Santa Fé, four blocks of the Western Pacific freight sheds and three blocks of the Channel and Pacific Mail docks, so that the location is an ideal one from a wholesale standpoint. Spur tracks run directly to the receiving floor of the building, and will accommodate the unloading of eight cars at one time. A private driveway through and between the buildings insures the rapid and economical receipt and dispatch of merchandise. There are eight doors from the shipping room for outgoing freight. The main building is 258 x 275 ft., containing 212,850 sq. ft., and the iron warehouse is 95 x 240 ft., containing 22,800 sq. ft. The main structure contains a sprinkler system of about 3000 sprinkler heads, with about six miles of pipe line. It is also equipped with a

trated descriptive price-list of Bolts, Nuts, Rivets, Wrenches, Washers, &c., in great variety, with cutout marginal index for quick reference.

MARTIN METAL MFG. COMPANY, Wichita, Kan.: Illustrated catalogue of 90 pages of Tanks, Culverts, Eave Trough, Conductor Pipe, Crestings, Gutters, Roofing, Siding, &c.

ROBERT H. INGERSOLL & BRO., 45-49 John street, New York: Illustrated booklet describing Ingersoll Watches, including Yankee, Junior Midget for ladies, Eclipse and Auto, together with Chains, signs and display fixtures.

OHIO IMPROVEMENT COMPANY, Bowling Green, Ohio: Illustrated implement catalogue, No. 7, 32 pages, containing Farm Implements, Garden Tools, Burton Bob Sleds, Rollers, Pulverizers, Hay Loaders, Single Trees and Feed Cutters.

KELLEY-HOW-THOMSON COMPANY, Duluth, Minn.: Twelve-page illustrated catalogue of winter goods, including Horse Blankets, Robes in both plush and fur, &c.

KILBOURNE & JACOBS MFG. COMPANY, Columbus, Ohio: Folder illustrating and describing Steel Factory Pans of various kinds, Seamless Watering Troughs, Feed Boxes, Ore Baskets, Ladle Bowls, Cuspidors, Stacking and Taper Boxes, Barrel and Truck, &c.

G. W. Wendell has been succeeded in the Hardware business at Spencer, Wis., by C. M. Varney.

Here and There in the Hardware Store.

BY SAMUEL MASTERS.

IX.—SALES METHODS.

THERE seems to have arisen in the land within the past year or two a new sect, which worships at the shrine of a fetish which its priests call Salesmanship, and whose ritual is a mixture of mental science, buncombe, assertiveness and artful address, leavened with enough of the essential qualities of sales making to give it some value to those who are ignorant of the first principles of business.

Fuller-In-ism Reduced to a Science.

The magazines devoted to commercial practice contain articles which deal with special features of the creed; books have been written expounding it, and some of its features have been reduced to formulæ and form a portion of lectures and instructive essays by its seers. It would seem that to be a successful salesman it is necessary to use other means of influencing a buyer than cool reason—that the seller must lead him away from a dispassionate consideration of the article vended, its price and its suitability to his needs, and by working upon his feelings or his subjective mind to induce him to purchase when his reason would, perhaps, counsel a refusal. Personal magnetism is one of the forces enlisted in its cause, and a personal ascendancy over the buyer's will is to be sought as a prime factor in the deal.

"First, secure his undivided attention," cry the teachers of the new cult; "then arouse his interest in your wares; then create in him the desire to possess, which will stimulate him into a determination to buy. Give him no chance for cool reflection. Show up the excellencies of your goods in such fashion that the buyer will, in contemplation of them, be influenced by your presentation, and (unconsciously), by the working of your subconscious intelligence upon his, forget any deterrent facts and be moved, independently of his judgment, to purchase."

The Art of the Single Deal.

A book agent, a nurseryman, a gold brick artist, an insurance solicitor, a promoter or other vendors who expect to make but a single sale might find such a creed of value, but in Hardware I don't believe that anything can take the place of hard plugging on the part of the salesman, working strictly within the field of reason, and depending upon quality, price and delivery for his argument. I have yet to find an instance in which any permanently favorable relations were ever established upon any other footing.

Even Good Buyers Go Wrong.

I presume that every buyer has been influenced by his personal feelings to disregard the promptings of his judgment and buy goods of doubtful merit. There are times when the personality of the salesman so dominates the situation that the buyer yields to its influence. I have known Hartman, Junior, whose superior ability as a buyer was recognized, to give a salesman an order and cancel it by wire when he had time to give the subject a dispassionate review. I knew him in one instance to put in a stock of unsalable Wire Ties in defiance of the sales manager's protest, and frankly acknowledge later that the salesman had got the better of him against his own judgment. But the salesman had a scant hearing when he next called and never made another sale to Hartman, Junior.

Dealing in Futures.

A winning personality, a good carriage, a cheerful, optimistic manner, and the "gift of gab" are surely great aids in making sales. But the real test of a salesman is not the taking of a single order through his personal qualities, but the lasting satisfaction resulting from the trade relations established, which make subsequent orders come in when the first supply is exhausted, and proves that the salesman has the customer's interest at

heart as well as his own. A good line, right prices, prompt deliveries, a study of the customer's needs and a refusal to supply material not in consonance therewith are more potent factors in building up a clientele than any succession of appeals to the personality of the buyer.

Distrust the Over-Friendly Salesman.

In my experience as a buyer—and I have bought several millions of dollars' worth of merchandise of various kinds—I have learned to distrust the salesman who endeavors to thrust his personality upon me or to establish himself upon a friendly footing at the time a purchase is contemplated. I have also learned to try to avoid any bias in judgment because of faulty tactics on the part of the salesman and to keep strictly in view the article tendered and its merits regardless of the salesman's inducements. While I like as a class the men on the road I personally prefer to place orders for new lines without any solicitation on their part, or after they have presented their arguments and gone upon their way.

The Social Bribers.

I prefer not to do any business with salesmen of one type—the fellows who become familiar upon short notice and preface their story with the presentation of a cigar. Hartman, Junior's, treatment of such gentry always occurs to me when I deal with them. It was an inflexible rule with him never to accept a present or a personal favor from the men who called upon him, and the only exception I ever knew him to make was to accept the salesman's proffered cigars with brief thanks, and place them in a corner of his desk where the stockman could find them. It was easier to do this than to refuse. I have known him to become quite impatient with tactless salesmen who insisted upon taking him to lunch, and, if the offender was a stranger, whose slight acquaintance made it very evident that the invitation was a salesman's ruse and not caused by any friendly feeling, his refusal was at times quite brusque. He was generally classed as a "cold proposition" by salesmen, and did his business in an atmosphere calculated to make the salesman get down to the bottom discount, and tell his story plainly and fairly at the first recital.

Good Fellowship at a Discount.

It can be understood that a man of his ideas and temperament would not be in sympathy with Mr. Martin's ideas of handling sales of factory supplies upon a basis of good fellowship cultivated by the city salesmen. Mr. Martin, on the other hand, thought that Hartman, Junior, was too arbitrary in his methods, and made much of the stories of disappointed salesmen who occasionally stopped in the city store on the way out to tell of their chilly reception. Hartman, Junior, believed that other buyers liked to be approached as he did, and that the best basis for business was industrious solicitation and plain facts. He was therefore heartily in sympathy with any plan which could be devised which would enable him to check up the city salesmen's work and arrive definitely at the results attained.

(To be continued.)

Salem Iron & Steel Company, Inc.

THE SALEM IRON & STEEL COMPANY, INC., lately organized, has taken over the stock of the Salem Nail Company, and will continue the business at 279 Pearl street, New York, the old location. C. A. Miller of Miller & Brewer, 83 Maiden lane, is president of the company, and Frederick Connell, for the last 11 years connected with the sales department of the American Steel & Wire Company and its predecessors, is secretary and treasurer. The company will carry in stock Wire and Cut Nails, Railroad and Boat Spikes, Cement Coated Nails, Tacks, Staples, Bar Iron and kindred products, and will make a specialty of galvanized and tinned materials. The company will also give attention to iron and steel products for export.

The Hardware business of Meecham & Fuller, Fen-ville, Mich., has been purchased by Henry Lamb, who will also handle a line of Gas Engines, Implements and Bug-gies.

LETTERS FROM THE TRADE.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Patent Infringement Suits.

From a Kansas Manufacturer: We note in a recent issue of *The Iron Age* correspondence signed "Ohio" regarding patent infringement suits, and as we have had a little experience along this line we give you the benefit of same.

There are two different manufacturers sending out warnings to our customers, advising them that they are liable for damages on account of handling some articles of our manufacture which these parties claim infringe on patents held by them. We are sending out a letter to all our customers regarding the matter, inclosing a reprint of decision by Justice Allen, as follows:

An Infringement Decision.

Concerning the right of the owner of a patent to sue the purchasers of the goods claimed to have been patented, our courts invariably hold that the suit should be filed against the manufacturer of the alleged patented goods, and that the purchasers should be protected, and if several suits are filed against the purchasers, the courts will enjoin their prosecution and compel prosecution against the manufacturer.

The case of *Ide vs. Ball Engine Company*, 31 Federal, 901, was one where the Ball Engine Company claimed that *Ide* was infringing upon its patent, and brought suit against several of the purchasers from *Ide* for damages,—an injunction was issued, enjoining such prosecution. In the decision Justice Allen says:

"Public policy would seem to favor the rule that litigation for the purpose of ascertaining and sustaining the validity of the patent, should be between the patentee and the alleged infringing manufacturers."

And in that case the Ball Engine Company was enjoined

from suing the various purchasers of the goods manufactured, on that point the Court saying:

"To the extent of restraining complainant from prosecuting suits against the purchasers or users of the Ball Engine Company patent, until the pending litigation involving the litigation of the several patents terminates, an injunction will be granted."

You will note from this decision that an infringing manufacturer should be looked to for damages before suit is brought against the purchasers.

His Wife's Purchase and the Moral.

To the Editor: Touching on the value of attractive and complete displays of goods in Hardware stores so as to remind customers of goods other than those for the purchase of which they visit the store, the following incident may be of some interest:

The other day among my wife's purchases I observed a Nail Hammer, which she had bought in one of the 5 and 10 cent stores of our city. Naturally my curiosity was aroused to know why on such an article she had not come to my store where goods are retailed as well as wholesaled.

"Why," she said, "I never saw a Hammer of that kind in your place. Your Hammers are of the grade sold to carpenters and mechanics at a very much higher price, and the cheaper one answers my purpose just as well."

When I had recovered my equanimity I told her that the Hammer she had thus purchased was originally obtained from my stock by the 5 and 10 cent store people. The revelation was almost as disturbing to her as the news of her investment had been to me.

This incident affords an additional object lesson that goods well sampled and conveniently and attractively displayed and arranged create a desire on the part of the beholder to buy, and influence business that might otherwise be lost. Doubtless many unnecessary purchases are made as a result of such displays, but that is the buyer's concern, not the seller's.

ATLANTIC COAST.

THE CONVENTIONS AT MEMPHIS.

American Hardware Manufacturers' Association—National Hardware Association.

THE annual conventions of the American Hardware Manufacturers' Association and the National Hardware Association, held last week at Memphis, Tenn., constituted a notable occasion and one well worthy of the two great organizations. The attendance was gratifying, both associations being largely represented and all sections of the country covered. Very marked was the hospitality of this fine Southern city, and this contributed much to the success of the gathering. The Gayoso and Peabody hotels were the headquarters of the associations, the jobbers largely occupying the former and the manufacturers the latter, the business sessions of both conventions being held in the Gayoso.

Attendance.

It is a noteworthy fact evidencing emphatically the importance of the conventions in the estimation of the trade that the attendance in both associations seemed to be fully up to the average of former years. This was especially remarked because the convention was held so far from the manufacturing and financial centers of the East and a little off the beaten tracks of travel. It may be that the number of Eastern jobbers present was slightly reduced on this account, but it would seem that Eastern manufacturers were glad of the opportunity to visit territory not fully known and customers seldom if ever before met upon their home ground. The attendance of Central, Western and Northwestern jobbers was quite as good as usual, while in the case of Southern and Southwestern jobbers it was of course particularly large. Many ladies were present from all parts of the country enjoying to the full the numerous social features of the programme and the graceful, whole-hearted hospitality of their charming hostesses.

Accommodations.

There is no doubt that the many who were visiting Memphis for the first time were much impressed with

the qualifications which it presented as a convention city and the excellent accommodations afforded. The Gayoso Hotel, which was made the headquarters and meeting place for both conventions, and the Peabody, where most of the manufacturers were lodged, are spacious, modern houses, affording all the comforts required by the most luxurious traveler. The management of the two houses did everything in their power to promote the convenience of their guests, and much appreciation was expressed for their hospitable attentions.

The Opening Session.

The usual opening session of the National Hardware Association participated in by the manufacturers and other guests was held on Wednesday morning, and was well attended. President W. S. Wright called the gathering to order with a few remarks in his most happy vein, after which "America" was sung, and Rev. J. R. Winchester of Memphis offered prayer. President Wright then introduced J. H. Malone, Mayor of Memphis, whose eloquent address of welcome was greatly enjoyed. The annual address of the president and secretary were then delivered, after which came a general discussion of

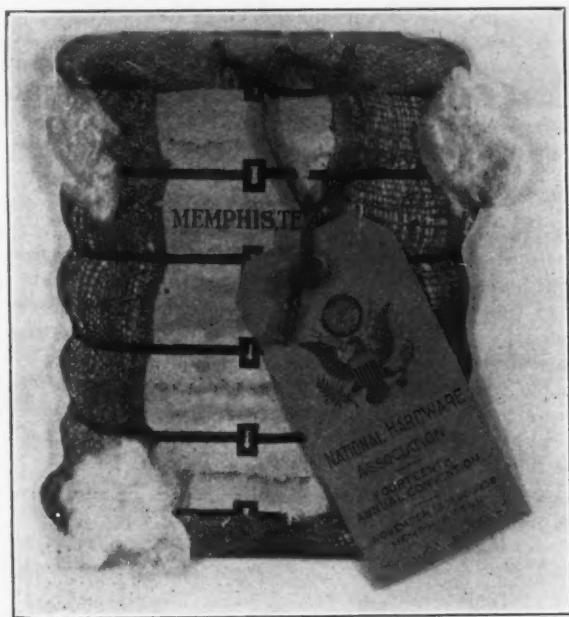
The Business Outlook.

It will be remembered that in the period of financial crisis, during which the convention met at Atlantic City a year ago a discussion of the outlook was perhaps a feature of the occasion. The tone was one of reassurance, neither manufacturers nor jobbers showing any disposition to be stampeded by the dangers threatening them. Nevertheless it was a period of anxiety, the justification for which has been seen only too clearly in subsequent events. This year the belief was unanimously expressed that the outlook is marked by clearer skies and a bright sun of promise. Chastened perhaps by the recollection of some errors of a year ago, many were

Inclined to be conservative in their expressions, but an unmistakable atmosphere of confidence and hopefulness prevailed.

Among those who gave their fellow Hardwaremen the benefit of their ideas were D. H. Goodell, Goodell Company, Antrim, N. H.; Robert Garland, Garland Nut & Rivet Company, Pittsburgh; J. D. Moore, Moore & Handley Hardware Company, Birmingham, Ala.; C. D. Clark, Clark, Quien & Morse, Peoria, Ill.; A. L. Scott, Pacific Hardware & Steel Company, San Francisco; W. T. Johnson, American Axe & Tool Company, Glassport, Pa.; R. A. Kirk, Farwell, Ozmun, Kirk & Co., St. Paul, Minn.; Dr. J. Hutchinson Hall, William Schollhorn Company, New Haven, Conn., and R. R. Williams, Hardware editor of *The Iron Age*.

Perhaps the most important point brought out by the discussion was the fact that the jobbers do not favor a material advance in Hardware prices in general at the present time, believing that such a movement is not warranted by conditions and would tend to retard progress, if not check it altogether. Many of the manu-



facturers present stated that they were fully in sympathy with the jobbers' attitude and expressed some surprise that they were understood to contemplate such action. Prices, it was declared, have in the main been well maintained in spite of adverse conditions, and therefore an advance at the first sign of improving business would certainly be regarded with suspicion.

The meeting closed with the introductions of several old friends who were present as representatives of other associations, including William Starke, president of the Canadian Wholesale Hardware Association; J. Hardy, secretary of that association; President A. T. Stebbins of the National Retail Hardware Association, and others.

American Exporters' and Importers' Association.

Recognizing the need of increased intelligence in the handling of export trade and the value of co-operation among manufacturers and merchants in handling this business, the following resolution was adopted by the manufacturers:

Whereas, The export trade in articles of Hardware has grown to be of large proportions and is an important factor with many of our members; and

Whereas, The exporters' association of New York City, a body composed of the principal exporters located there, has signified through its officers a willingness to co-operate with this association with a view to extending the sale of American Hardware in foreign countries, and has expressed a desire to render all possible assistance to any of our membership who may be interested; therefore be it

Resolved, That the American Hardware Manufacturers' Association, in convention assembled, gladly extends to the exporters' association the right hand of fellowship, and hereby expresses the wish to co-operate with their association insofar as the diversified make-up of our membership make it possible to do so.

Local Jobbing Associations.

An unusual amount of attention was devoted to the matter of local jobbing associations. Reports from several sections indicated the existence of such associations in effective operation and tended to show that they were regarded as most beneficial to the jobbing trade in those districts. Jobbers from some localities not organized showed a decided interest in the methods employed by their brother jobbers, and it is not unlikely that as a



ROBERT GARLAND.



R. M. DUDLEY.

result one or two new local jobbing associations will be organized.

Sherman Anti-Trust Law.

No organized action was taken on the Sherman anti-trust law, although it was frequently a subject of informal discussion. It is now generally recognized that this statute should be modified or repealed at the next session of Congress, as it is too drastic and sweeping in its operation and scope and pernicious in its effect.

Protection of Patent Rights.

President Asbury in his annual address called attention to the fact that whereas the United States issues patents affording protection to foreign inventors without stipulation that the goods must be made in this country, the principal European countries have laws governing patents issued to American inventors which require the working of such patents in the countries granting them. This obviously decreases the commercial value of patents issued to American inventors and entails upon American



CHAS. W. ASBURY.



W. S. WRIGHT.

manufacturers owning such patents great hardship and expense. The subject was referred to the Committee on Resolutions, and the following resolutions reported by them were adopted:

Whereas, United States patents issued to foreign inventors give protection to the inventors thereof for 17 years, without a tax of any character or any provision for working said patents in this country, thus giving the foreign owners unlimited time to dispose of such patents without having their value decreased by compulsory working or the payment of any fees or taxes; and

Whereas, The principal European countries, especially Great Britain, France and Germany, have now in effect laws governing patents issued to American inventors which require the working of such patents by said American owners in the coun-

tries granting same, which entails a hardship and great expense, thus decreasing the commercial value of patents issued to American inventors; now, therefore, be it

Resolved, That the American Hardware Manufacturers' Association, which has enrolled in its membership a majority of the large Hardware manufacturing interests in the United States, requests that the proper authorities at Washington give consideration to this important subject, so that our interests will be given adequate protection; be it further

Resolved, That copies of this resolution as adopted be forwarded through the secretary-treasurer of our association to all members, asking that they in their turn take the matter up through their various representatives in Congress, so that prompt action may be had.

Cost Keeping.

In President Asbury's annual address of a year ago the need of adequate cost keeping systems in manufacturing plants was brought up and it was promised that steps would be taken by the manufacturers' association to investigate this matter and place at the disposal of the



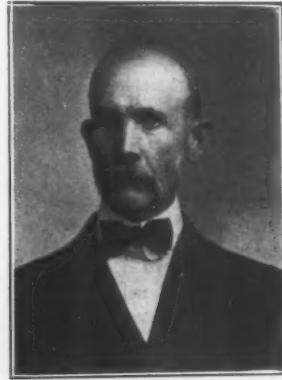
E. M. KEMP.



C. A. EARL.

members the information secured. It was brought out that the subject was a matter for association action since a clear knowledge of costs on the part of every manufacturer would make for a stable market and prevent a reduction of prices through competition to a ruinous

basis. As will be noted from President Asbury's annual address, given in another column, a good deal has been accomplished during the year along this line, one result being an address delivered before the association by B. A.



J. D. MOORE.



H. C. ATKINS.

Franklin, Miller & Franklin Company, Boston, on the subject of cost keeping systems. The address was an able exposition of the subject profusely illustrated by diagrams and aroused much interest on the part of those who heard it.

Cash Discount.

Considerable progress has been made during the past year in establishing 2 per cent., 10 days, as the general terms of cash discount. A year ago there was a movement among the manufacturers to reduce the discount to 1 per cent., but owing to the importunity of the jobbers, and also perhaps to the untoward business conditions, some of those who attempted to establish this rate, were unable to maintain it. The contention of the manufacturers has all along been that whatever the amount of discount the 10-day term should be strictly respected by the jobbers in making remittances, and the promise of a

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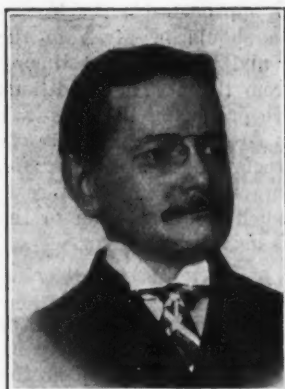
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closer adherence to this rule doubtless had much influence in inducing the manufacturers to maintain the old rate instead of making it 1 per cent.

The National Retail Hardware Association.

As has been the case for a number of years, the National Retail Hardware Association was represented by an able and dignified delegation, including its president, A. T. Stebbins, Rochester, Minn.; Secretary M. L. Corey, Argos, Ind.; W. P. Bogardus, Mt. Vernon, Ohio;



F. D. MITCHELL.



BRACE HAYDEN.

S. R. Miles, Mason City, Iowa; E. M. Bush, Evansville, Ind., and A. H. Abbe, New Britain, Conn.—all gentlemen high in the councils of their State and national organizations. Beside the thoughtful address delivered by President Stebbins before the Manufacturers' Association, and given in another column, the retailers were heard from at the joint opening session, and also at executive meetings of both the jobbers and the manufacturers. The intelligence, moderation and clear sightedness of their suggestions and views were a subject of favorable comment, although both manufacturers and jobbers have learned to expect nothing less.

Syndicate Buying.

One of the prominent subjects before the jobbers was syndicate buying. It will be remembered that for several years the National Hardware Association through its secretary has exercised a supervision of the lists of houses represented by the New York Syndicate Buyers, so that only jobbing houses deemed of suitable size might be given the advantage of this representation. The principal syndicate buyers have pretty loyally submitted to this supervision and have been in the habit of submitting their lists for approval, refusing from time to time to serve such houses as were not regarded by Mr. Fernley as entitled to the advantages of this method of keeping in touch with the market and in purchasing goods.

One of these firms of syndicate buyers, W. B. Fox & Brother, an old and generally considered conservative house in this field, has, however, recently refused to be subject to individual control in this matter, while expressing their willingness to act in harmony with the desires of the association and in accordance with the spirit of the understanding originally had in regard to syndicate buying. In the present condition of things this house is accordingly carrying on the business without the approval of the National Hardware Association, such approval being impliedly, at least, given to the other syndicate buyers. They, however, state that they are not in any case representing merely retail houses or smaller houses than the other syndicate buyers are permitted to have on their lists. In view of the fact that there are in this country hundreds of smaller jobbers who under present conditions are denied the opportunities afforded by syndicate buying, it is generally recognized that an interesting question is brought before the trade, who will await further developments with interest.

Parcel Post Legislation.

Considerable attention was paid by both associations to the Parcel Post question, which has been a prominent topic at several recent conventions. The question is still recognized as a live one, demanding all possible

activity and alertness on the part of those who oppose legislation favorable to Parcel Post, which is certain to be offered at the coming session of Congress. The position of these two associations is well known, and their labors and influence have had much to do with defeating such legislation in the past. In view of the suggestion that President Roosevelt might incorporate some expression favorable to Parcel Post in his forthcoming message, telegrams were sent to him by both associations urging him to use his influence against the adoption of such measures. The telegram of the Manufacturers' Association, which was signed by Robert Garland, its president, was as follows:

The American Hardware Manufacturers' Association in convention assembled, unanimously passed a resolution disapproving any legislation looking toward the adoption of a parcel post measure; this in the interest of a large number of citizens throughout the country. We earnestly solicit your influence.

Following is the text of the jobbers' telegram:

In the interest of a large proportion of the citizens of this country we urgently request you to use your influence against the adoption of any parcel post measure.

The following resolutions relative to the parcel post question were adopted by the National Hardware Association:

Whereas, The Postmaster-General has become an active, ardent advocate of a parcel post, going to the extent of requesting the postmasters of the country to address our public school children on the subject; and

Whereas, We, after having given much consideration to the results of the operation in this country of such a system; and,

Whereas, We have come to the conclusion that it is no part of the function of the United States Government to enter into the merchandise carrying business; and,

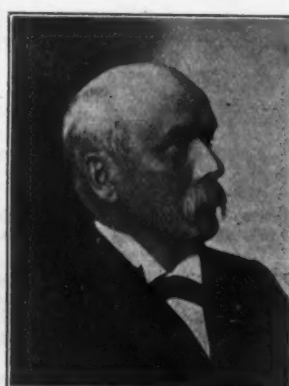
Whereas, We believe that the present large deficit of the postal department would be enormously increased if any character of parcel post was put into operation;

Resolved, That we urgently request our Senators and Representatives to vote against any measure looking to the establishment of such a system, and that we urge the members of the association to do their utmost to prevent the passage of a measure which would to such an extent revolutionize business and cause the financial ruin of hundreds of thousands of small merchants throughout the rural communities, thus causing serious loss and great inconvenience to the farming communities;

Resolved further, That inasmuch as the Government is charging almost three times the amount of cost for carrying such



T. JAS. FERNLEY.



A. T. STEBBINS.

mail, we urge in the interest of the entire population without regard to any class distinction the adoption of a one cent letter rate.

Officers of the American Hardware Manufacturers' Association.

The election of officers for the ensuing year resulted as follows:

PRESIDENT, Robert Garland, Garland Nut & Rivet Company, Pittsburgh, Pa.

VICE-PRESIDENTS: C. A. Earl, Corbin Screw Corporation, New Britain, Conn.; E. M. Kemp, Wabash Screen Door Company, Chicago, Ill.; H. C. Atkins, E. C. Atkins & Co., Inc., Indianapolis, Ind.

SECRETARY-TREASURER, F. D. Mitchell, New York.

EXECUTIVE COMMITTEE: G. H. Jantz, American Wringer Company, New York; George T. Bailey, Oliver Iron & Steel Company, Pittsburgh, Pa.; W. H. Bennett, Lawson Mfg. Company, Chicago, Ill.; W. C. Kelly, Kelly Axe Mfg. Company, Charleston, W. Va.; Frederick S. Merrick, Standard Horse Nail Company, New Brighton, Pa.; R. N. Peck, Stanley Rule & Level Company, New Britain, Conn.; Fayette R. Plumb, Fayette R. Plumb, Inc., Philadelphia, Pa.; T. H. Taylor, American Steel & Wire Company, New York.

C. W. Asbury retires from the presidency after two terms of service. His administration has been marked by unusual dignity, justice and effective concentrated effort under which the association has made notable progress. Although alert and decided in acting in the interest of his association, Mr. Asbury has shown marked fairness and consideration in his relations with the jobbing trade, while the retailers have found in him a friend, able and willing, to take their point of view and imbued with the earnest desire to promote their interests.

Robert Garland, president-elect of the Manufacturers' Association, has been identified with the organization since its inception, being indeed chairman of the organization meeting held at Cleveland eight years ago. For two years he was chairman of the Executive Committee, and has recently held the office of vice-president. He has been in the iron and steel business in Pittsburgh 30 years, and is a member of the Chamber of Commerce of that city, and several prominent local clubs; also of the Engineers' Club of New York. In addition to the presidency of the Garland Nut & Rivet Company he holds the vice-presidency of the Standard Chain Company, Pittsburgh.

Officers of the National Hardware Association.

The following officers for the ensuing year were chosen:

PRESIDENT, Robert M. Dudley, Gray & Dudley Hardware Company, Nashville, Tenn.



H. R. MILLER.

W. G. THOMAS.

GEO. D. KIRKHAM.

IRBY BENNETT.

Prominent Members of the Entertainment Committee.

FIRST VICE-PRESIDENT, Brace Hayden, Dunham, Carrigan & Hayden Company, San Francisco, Cal.

SECOND VICE-PRESIDENT, J. D. Moore, Moore & Handley Hardware Company, Birmingham, Ala.

SECRETARY-TREASURER, T. James Fernley, Philadelphia, Pa.

EXECUTIVE COMMITTEE: H. L. Doten, Austin & Doten, Boston, Mass.; W. D. Taylor, George Worthington Company, Cleveland, Ohio. For the unexpired term of Mr. Dudley, C. A. Knapp, Knapp & Spencer Company, Sioux City, Iowa. For the unexpired term of J. D. Moore, Major T. G. Walther, Hackett-Walther-Gates Hardware Company, St. Paul, Minn.

With the retirement of W. S. Wright from the chair, which he has occupied for the unusual period of three years, the National Hardware Association loses an executive and presiding officer of rare personal qualities from whose ability, tact and unselfish exertions it has profited to a remarkable degree. He lays down the gavel enjoying the personal friendship of probably as large a number of jobbers, manufacturers and retailers as any man in the country. His successor, R. M. Dudley of the Gray & Dudley Hardware Company, Nashville, Tenn., is a man of large calibre and universal popularity, under whose direction the association is sure to progress and prosper. His election was not only a well deserved personal honor, but a graceful compliment to the South, and especially to Tennesseans, to whom the association is so much indebted for the success of its convention. The office of first vice-president, made vacant by the death of the lamented John C. Koch, was filled by Brace Hayden of the Dunham, Carrigan & Hayden Company, San Francisco, a man whom the association delights to honor. J. D. Moore, Moore and Handley Hardware Company, Birmingham, Ala., a member of the Executive Committee, was elected second vice-president. Mr. Moore is a man whose wisdom and farsighted judgment have

long been appreciated by his colleagues in the association.

Tariff Revision.

Many of the manufacturers are vitally interested in the imminent revision of the tariff, and thoughtful reference to the subject will be found in the address of President Asbury. Whether it is believed that revision cannot be avoided or that it is indeed to be desired from an economic standpoint, both of which views are held by persons of unquestioned wisdom, it is obviously desirable that the schedules should be approached with intelligence, and that due attention should be given to the views of American producers, and the expert testimony which can only be obtained from them. The conditions under which manufacturers are producing the great variety of goods they make are so diverse that it is obviously impossible for the association to look after the interests of the various manufacturers, on whom rests the responsibility of making such representation to the Ways and Means Committee as may be called for.

Mail Order Competition.

The subject of catalogue house competition came in for some attention in view of the argument advanced by the representatives of the retail trade. They took the position that if, as is generally acknowledged, there are three recognized classes in the trade—manufacturer, jobber and retailer—the only class to which the catalogue

house can possibly belong is that of retailer. As such they argued the catalogue house is not entitled to receive better prices than other retailers and to quote them such prices is distinctly unfair in that it favors one group of retailers at the expense of another.

Manufacturers' Convention Committees.

The following manufacturers' committees served during the convention:

ENTERTAINMENT: N. A. Gladding, Indianapolis, Ind.; Irby Bennett, Memphis, Tenn.; E. M. Kemp, Chicago; Geo. D. Kirkham, Memphis, Tenn.; H. B. Lupton, Pittsburgh, Pa.; C. H. Windt, Memphis, Tenn.; Joseph M. Hottel, Philadelphia, Pa.

RECEPTION: George T. Bailey, Pittsburgh; W. H. Bennett, Chicago; Arthur B. Birge, St. Louis; A. W. Bowman, Hartford, Conn.; Harry C. Disston, Philadelphia; Frank G. Drew, Philadelphia; Roland Gerry, Pittsburgh; George H. Harper, Baltimore, Md.; Walter P. Hudson, New York; R. B. Jones, Clyde, Ohio; Geo. T. Price, Charleston, W. Va.; G. K. Simonds, Fitchburg, Mass.; G. R. Stafford, Atlanta, Ga.; Jas. N. Stanley, New Britain, Conn.; Daniel K. Stucki, Buffalo, N. Y.; J. J. Teeple, Philadelphia.

PRESS: W. W. Birge, Philadelphia; E. E. Kelley, Little Valley, N. Y.; G. V. Willson, Pittsburgh.

NOMINATIONS: Geo. V. Willson, Pittsburgh; B. A. Hawley, New Britain, Conn.; H. W. Caldwell, Cleveland, Ohio; I. H. Page, Chicopee Falls, Mass.; D. A. Merriman, Chicago; Frederick A. Searle, New Britain, Conn.; S. G. Giddall, Ironton, Ohio; Walter W. Birge, Philadelphia; Geo. E. Holton, Cata-sauqua, Pa.

CREDENTIALS: F. Herbert Smith, Providence, R. I.; George H. Harper, Baltimore, Md.; R. B. Jones, Clyde, Ohio; J. H. Towne, New York; J. H. Van Newkirk, New Britain, Conn.

F. Herbert Smith, Nicholson File Company, Providence, R. I., acted as sergeant-at-arms.

RESOLUTIONS: C. A. Earl, New Britain, Conn.; H. B. Lupton, Pittsburgh; J. C. Birge, St. Louis, Mo.; D. H. Goodell, Andover, N. H.; William H. Pratt, Greenfield, Mass.; C. B. Lee, Norwich, Conn.; E. M. Kemp, Chicago.

Jobbers' Convention Committees.

The jobbers' convention committees were as follows:

ENTERTAINMENT: T. James Fernley, Philadelphia; H. R. Miller, Memphis, Tenn.; Frederick Orgill, Memphis, Tenn.; Hobart Weed, Buffalo, N. Y.; John R. Griffith, Philadelphia; Robert Biddle, 2d, Philadelphia; S. Spencer Scott, Philadelphia.

PRESS: J. R. Nutting, Davenport, Iowa; Geo. W. Herrick, Boston, Mass.; J. B. Silliman, Atchison, Kan.; C. B. Lockwood, Cleveland, Ohio; O. B. Barker, Lynchburg, Va.; H. L. Thompson, Toledo, Ohio; James J. Mandlebaum, Little Rock, Ark.

RESOLUTIONS: J. R. Loder, New York; W. Chamberlain, Portland, Maine.

NOMINATIONS: W. W. Supplee, Philadelphia; A. L. Scott, San Francisco; T. G. Walther, St. Paul; George T. McIntosh, Cleveland; H. G. Lipscomb, Nashville; A. H. Decatur, Boston.

Address of J. A. Emery.

An eloquent address on the subject, "Class Legislation and Business," was delivered at an open session of the manufacturers by J. A. Emery, Washington, D. C., counsel for the National Association of Manufacturers. He referred mainly to labor problems, and particularly to attempted legislation by which labor unions are protected in actions not legal for corporations or individuals. The address was listened to with close attention and much enjoyment, and Mr. Emery was tendered a unanimous vote of thanks.

The Old Guard Southern Salesmen.

Many of the prominent Southern salesmen were in attendance on the conventions, and held a meeting at which they completed their organization under the title of the Old Guard Southern Hardware Salesmen's Association, adopting a constitution and taking steps for the active carrying on of the association work.

In Memoriam.

Two prominent members of the Manufacturers' Association have died since the last convention, Samuel Disston, Henry Disston & Sons, Philadelphia, and Edwin B. Pike, Pike Mfg. Company, Pike, N. H. Both were men of unusual prominence, were loyal members of the association and were beloved by countless friends in the trade. In recognition of their loss, the Manufacturers' Association adopted the following expressions of sentiment:

Whereas, Since our last annual meeting it has pleased our Heavenly Father to remove from the scenes of his earthly labors Samuel Disston, one of our strongest and best known members; be it

Resolved, That in the death of Mr. Disston the manufacturing and commercial interests of the country, as well as his city, have suffered a great loss. Mr. Disston was universally recognized by the manufacturing and mercantile community as a man of unimpeachable integrity and honesty and rare ability, with a thorough knowledge of every detail of the successful industry over which for many years, and until the close of his life, he had such complete control. Desiring to leave some affectionate tribute to his memory, be it further

Resolved, That these resolutions be spread on the records of this association and a copy forwarded to Mrs. Disston.

E. B. Pike, president of the Pike Mfg. Company of Pike, N. H., died suddenly August 24, 1908. Mr. Pike was a great business man. He increased his business fully fivefold in ten years. He was a man of the highest moral character. His Christian life had a tremendous influence upon his friends everywhere, and especially in his own village and State. Surely a great man has fallen, and we deeply mourn his loss. The American Hardware Manufacturers' Association wishes to extend its sympathy to Mrs. Pike and all other members of his family in their days of sorrow, and ask that this sentiment be recorded on our books and copy sent to Mrs. Pike.

Death has also removed two members from the National Hardware Association within the year: John C. Koch, John Pritzlaff Hardware Company, Milwaukee, Wis., and H. W. Cortes, Bering & Cortes Hardware Company, Houston, Texas. Appropriate recognition of their death will be found in the annual address of President Wright, given elsewhere.

Manufacturers Selling Retailers.

The matter of manufacturers selling direct to retailers was agitated at some length in the executive sessions of the jobbers, many of whom expressed the belief that they had a grievance on this score. There was a pretty frank discussion as to what attitude the jobbers individually and collectively should assume toward manufacturers who persisted in this practice. Several expressed the conviction that they were strong enough in their national and local associations to dictate to the manufacturers, and at least prevent an increase in activity along

this line. When the matter was brought to their attention, the retailers present expressed the belief that when the retailers go direct to the manufacturer it is the jobber's fault, and that they will continue to patronize the jobber as long as he carries the goods the retailers want and gives them right prices and satisfactory service.

Atlantic City Next Year.

There was no little interest in the discussion of the next place of meeting, several places being prominently mentioned. Active work was done by the Chicago contingent, who distributed badges inscribed, "Chicago, 1909." Columbus was also mentioned, and booklets were distributed setting forth the advantages of that manufacturing center as a convention point. Invitations were also received from several other cities. Considerable sentiment developed in favor of New York, but the preference of the jobbers was very decided in favor of going back to Atlantic City, its ample hotel accommodations, bringing the two associations under one roof, being one of the strong points urged in its favor. Another well recognized advantage is the fact that it is near the metropolis, which most prominent Hardwaremen have occasion to visit several times during the year.

Committees to confer on the subject were appointed by both associations, the manufacturers' representatives being J. C. Birge, H. B. Lupton and N. A. Gladding, and the jobbers' Brace Hayden, R. M. Dudley and Secretary Fernley. At a meeting of this joint committee it was decided that Atlantic City was the most favorable place for holding the conventions next year, provided satisfactory arrangements could be made for hotel accommodations where both associations could be equally well served. It was further decided that a permanent committee consisting of the president, secretary and one other member of each association should hereafter assume the authority to make final arrangements. In case the committee was unable to make satisfactory arrangements at Atlantic City, it was vested with full power to make other provisions as to time and place.

Local Entertainers.

Among the many to whom the associations were indebted for their entertainment, special mention should be made of the able leaders upon whom devolved the bulk of the labor and responsibility. Unstinted praise was due and was universally accorded to H. R. Miller of the General Committee of Arrangements, W. G. Thomas, chairman of the Local Entertainment Committee; G. D. Kirkham, whose tireless efforts had much to do with the success of the various functions, and Irby Bennett, Memphis, to whom more than any one else may be attributed the credit for the notable banquet. N. A. Gladding, the efficient chairman of the Manufacturers' Convention Committee, was ably supported by his assistants and faithful work was also done by the Association Reception Committee headed by G. T. Bailey. Among the Memphis ladies who contributed to the entertainment of the visitors were Mrs. Earl Harris, Mrs. F. Orgill, Mrs. J. Orgill, Mrs. H. R. Miller, Mrs. W. E. Barnes, Mrs. J. W. Gladding and Mrs. B. M. Gladding. Following is the complete list of the local committees:

RECEPTION COMMITTEE: Fred Orgill, Jos. Orgill, H. R. Miller, J. W. Gladding, Earl A. Harris, D. C. Fenness, R. A. Reed, Hugh Wynne, H. Wetter, J. A. Riechman.

ENTERTAINMENT COMMITTEE: W. G. Thomas, Geo. D. Kirkham, W. R. Peete, H. L. Taylor, C. H. Windt, B. G. Lee, B. M. Gladding, Wm. Orgill, N. Benedict, W. F. Stephenson, W. E. Barnes.

Entertainment.

From the ladies' point of view and indeed from that of many of the gentlemen, whose convention duties left ample time for social enjoyment, a city like Memphis presents much greater attractions than a resort which can hardly be taken as representative of any particular section of the country. At Memphis every local Hardwareman and indeed the trade for a radius of 200 miles around felt a personal pride and responsibility in the entertainment of the visitors from other sections of the country. The city abounds, moreover, in local color, the value of which was appreciated and made the most of by the leading entertainers in arranging novel pleasures for their

guests. For the ladies there was something arranged by every day and evening during their stay. Wednesday afternoon they were given an automobile ride through the city and its environs. Thursday a delightful card party and luncheon were arranged at the Memphis Country Club by G. T. Bailey and the local committee, which was referred to by all who participated as one of the best managed and most enjoyable affairs of the kind which they ever attended. The party proceeded to the beautiful grounds of the club in special cars, and play was immediately begun under the direction of W. H. Bennett, assisted by an able corps of aides from among the gentlemen. The cards were given by E. C. Atkins & Co., Indianapolis, Ind. There were nearly 200 players, and through the liberality of the manufacturers who donated prizes every one was able to take away some souvenir of the occasion. Many of the prizes were of much value, representing the finest product of houses manufacturing Silver Ware, Fancy Metal Ware, &c. After the game an elaborate luncheon was served. The prizes were contributed by the following houses:

E. C. Atkins & Co.	Onelda Community.
American Screw Co.	Pike Mfg. Co.
American Wringer Co.	Pullman Mfg. Co.
American Iron & Steel Mfg. Co.	Richmond Cedar Works.
American Steel & Wire Co.	Russell & Erwin Mfg. Co.
American Can Co.	Rome Mfg. Co.
Ames Shovel & Tool Co.	Simonds Mfg. Co.
American Sheet & Tin Plate Co.	Schatt & Morgan Cutlery Co.
Blissell Carpet Sweeper Co.	Standard Chain Co.
Baeder-Adamson Co.	Standard Horseshoe Co.
Belfont Iron Works Co.	Tubular Rivet & Stud Co.
Ballard Automatic Wrench Co.	C. C. & E. P. Townsend Co.
Bryden Horseshoe Co.	Stanley Works.
Geo. H. Bishop & Co.	L. & I. J. White Co.
P. & F. Corbin.	Enterprise Mfg. Co.
Clinton Wire Cloth Co.	Clyde Cutlery Co.
Corbin Cabinet Lock Co.	H. D. Smith & Co.
Daisy Mfg. Co.	Lamson & Sessions Co.
Henry Disston & Sons.	Stanley Rule & Level Co.
E. I. Du Pont de Nemours	Caldwell Mfg. Co.
Powder Co.	Corbin Screw Corporation.
Eagle Lock Co.	Markham Air Rifle Co.
Frictionless Metal Co.	American Axe & Tool Co.
Gardner Nut & Rivet Co.	Dana Mfg. Co.
Goodell-Pratt Co.	Lufkin Rule Co.
Heller Bros. Co.	Avery Stamping Co.
C. T. Ham Mfg. Co.	Philadelphia Lawn Mower Co.
Hunter Arms Co.	Wyoming Shovel Works.
Iron City Tool Works.	Atha Tool Co.
Keasbey & Mattison Co.	American Pulley Co.
Keuffel & Esser Co.	Wood Shovel & Tool Co.
Lalance & Grosjean Mfg. Co.	Charles Parker Co.
Lake Erie Iron Co.	Union Fork & Hoe Co.
Lovell Mfg. Co.	United States Stamping Co.
Landers, Frary & Clark.	United States Horseshoe Co.
McCaffrey File Co.	Challenge Cutlery Co.
McKinney Mfg. Co.	Wabash Screen Door Co.
James H. Mann.	Evansville Tool Works.
Millers Falls Co.	Payton Mfg. Co.
Meriden Cutlery Co.	Carnegie Steel Co.
Mack & Co.	Reading Hardware Co.
Chas. Morrill.	J. C. Pearson Co.
National Cutlery Co.	Steinfeldt Brothers.
National Enameling & Stamp-	Snapple Hardware Co.
ing Co.	S. R. Droscher.
North Bros. Mfg. Co.	American Fork & Hoe Co.
New York Leather Belting Co.	Consolidated Fruit Jar Co.
Owensboro Shovel & Tool Co.	St. Louis Shovel Co.

Reception.

Thursday evening a formal reception followed by a ball was tendered by the manufacturers. It was a most brilliant affair, excellently handled in every particular, and was thoroughly enjoyed by all. Those who received included the presidents, ex-presidents and other officers of both associations, representatives of the Canadian Wholesale Hardware Association, and also the National Retail Hardware Association. A delicious supper was served in the dining room of the hotel, adjoining the ballroom.

The Banquet.

The annual banquet, it is safe to say, will long be remembered with pleasure by every one who was so fortunate as to attend. By a departure from previous custom this affair was scheduled for Thursday evening, the second day of the convention, instead of the evening of the concluding day, as in former years. This arrangement was most successful in increasing the general in-

terest in this function and adding to the attendance and is not unlikely to be followed in succeeding years. Although seats were provided for 400 people, there were a few who were unable to attend the banquet because the accommodations were exhausted. The greatest credit for the success of the affair is due to Irby Bennett, who had almost entire charge of the arrangements. The beautiful and lavish decorations of the banquet hall, the excellence of the music and the wit and eloquence of the speakers left nothing to be desired, and the evening passed all too quickly. Either the delightful surroundings or the irresistible rhythm of the Southern melodies put everybody in a singing mood, and at times the strains of the willing orchestra were almost drowned by the swelling choruses of "Dixie," "My Maryland," "America," &c.

After an invocation by R. R. Williams, Caruthers Ewing of Memphis made a brief address, marked by both eloquence and humor, in which he bade the associations welcome to the South, and introduced the toastmaster, H. B. Lupton of Pittsburgh. Mr. Lupton's remarks were particularly pleasing and appropriate, and he conducted the remainder of the programme in his usual courtly manner. After brief responses by President Asbury and President Wright on behalf of their respective associations, Gov. M. L. Patterson of Tennessee was introduced and responded to "Our Southland."

The Governor's address was carefully prepared, and was an utterance of no little import, dealing as it did not only with national affairs, the reuniting of the Blue and the Gray and the industrial development of the South, but referring also with fearless frankness to the serious problems now confronting the administration of the law in Tennessee. The effect of this address upon the audience was electrical. Immediately at its conclusion J. C. Birge, ex-president of the Manufacturers' Association, was on his feet, and offered the following resolution:

Whereas, The honored Governor of the State of Tennessee is endeavoring to uphold the honor and dignity of this Commonwealth, the peace and honor of which has been greatly disturbed by lawless bandits and assassins; therefore be it

Resolved, That we, the members of the National Hardware Association of the United States and of the American Hardware Manufacturers' Association, both in convention assembled in this city of Memphis, and embracing representatives coming from every State in the Union, desire to express our profound interest in the critical situation which confronts this Chief Executive; and we hereby convey the assurance that we share with the law abiding people of this our sister State, the hope that his hands may be sustained in the fearless and proper discharge of the duty which at this time rests upon him.

The resolution was greeted with applause and was passed with enthusiastic acclamation after being warmly seconded by President Asbury.

Thomas F. Gallor, Bishop of Tennessee, responded to "Our Church" and his lofty and inspiring address, calling for higher ideals and standards among all our citizenship, will not soon be forgotten by those who heard it. In conclusion "Private" John Allen of Tupelo, Miss., spoke to "Our Homes," his remarks being characterized by the spontaneous wit for which he is so widely known. The exercises were brought to a close by the hearty singing of "Auld Lang Syne."

The Boat Ride.

A steamboat ride on the Mississippi River arranged for Friday afternoon was a most enjoyable outing. By special effort the business sessions of both associations were concluded at noon so that the excursion could start at an early hour, luncheon being served aboard the boat. Music was furnished by a band on the upper deck and an orchestra played for dancing in the saloon. After a short sail a number of darkies, men and women, were taken aboard, who entertained by characteristic songs and dances, and finally held a competitive cake walk on the shore for prizes which were awarded by dignified and distinguished judges, concluding with a realistic crap game. Later the boat touched on the Arkansas side of the river and many of the party went ashore and picked cotton, which was taken home as a souvenir. The affair was most informal and was thoroughly enjoyed, Messrs. Kirkham, Miller, Thomas and their assistants receiving the cordial thanks of their guests one and all.

Traveling in Company.

The advantages of traveling in company on extended convention trips have long been appreciated by the Hardware fraternity. This year at least three parties were made up which not only added pleasure to the long journey, but afforded considerable opportunity for sightseeing and entertainment en route. As usual, the popular W. H. Bennett arranged for a "Hardware special," which was patronized by the majority of those coming from New York, Chicago and intermediate points. The train left New York on the morning of Sunday, the 15th, reaching Chicago Monday morning, where the travelers were at once made the guests of the local Hardwaremen for the entire day. The features of entertainment included an automobile ride about the city and a trip over the great establishment of Hibbard, Spencer, Bartlett & Co. Monday night the party, augmented by a large contingent from Chicago, re-embarked for Memphis, enjoying a delightful banquet served in the two dining cars attached to the train.

Another important party was made up in the Hardware city of New Britain and came down in special cars by way of Indianapolis, where they were entertained by the local Hardwaremen, enjoying an automobile ride about the city, visiting the local Hardware houses and being tendered a banquet and smoker Monday evening. Tuesday a similar stop was made in Louisville and a banquet was given by the Belknap Hardware & Mfg. Company. The return route was by way of Cincinnati.

A third party was made up to go by way of Washington, Knoxville and Chattanooga, and included many from Philadelphia and other Eastern points.

Souvenirs.

Quite a number of souvenirs, some of considerable value, were distributed by various manufacturers. Among them we note the following:

SIMONDS MFG. COMPANY, Chicago. Saw.
E. C. ATKINS & Co., Indianapolis, Ind. Saw.
CONSOLIDATED FRUIT JAR COMPANY, New Brunswick, N. J. Copper Oiler.
SMITH & HEMENWAY COMPANY, 110 Duane street, New York. Shrp Shavr Razor.
EVANSVILLE TOOL WORKS, Evansville, Ind. Hammer.
FERDINAND DIECKMANN COMPANY, Cincinnati, Ohio. Lead Pencil.
S. R. DROESCHER, 79 Warren street, New York. Pocket Knife Sharpener.
E. I. DUPONT DE NEMOURS POWDER COMPANY, Wilmington, Del. Paper Cutter.
AMERICAN SHEET & TIN PLATE COMPANY, New York. Steel Tape.
OWENSBORO SHOVEL & TOOL COMPANY, Owensboro, Ky. Pocket Flask.
DAISY MFG. COMPANY, Plymouth, Mich. Pop Gun.
AMERICAN SALES COMPANY, Chicago. Cork Screw.
DANA MFG. COMPANY, Cincinnati, Ohio. Match Box Holder.
C. T. HAM MFG. COMPANY, Rochester, N. Y. Thermometer.
NICHOLSON FILE COMPANY, Providence, R. I. Key Chain.
SAVAGE ARMS COMPANY, Utica, N. Y. Stick Pin.
LUFKIN RULE COMPANY, Saginaw, Mich. Ruler.
MERIDEN CUTLERY COMPANY, Meriden, Conn. Paring Knife.
GOODELL COMPANY, Antrim, N. H. Stag Fountain Pen Holder.
LAKE ERIE IRON COMPANY, Cleveland, Ohio. Pocket Book.
COLUMBIAN ENAMELING & STAMPING COMPANY, Terre Haute, Ind. Chafing Dish.

Convention Notes.

At the closing meeting of the National Hardware Association after the election of officers was concluded, the meeting was thrown open to manufacturers and others. After the installation and remarks from the new officers, A. L. Scott, San Francisco, acting for the association, presented retiring President Wright with a beautiful silver fruit dish as a slight token of appreciation and a memento of his term of office.

A number of faithful convention workers filled their usual positions of trust and responsibility, among whom may be mentioned Col. J. R. Nutting, Davenport, Iowa, chairman of the Jobbers' Press Committee; J. R. Loder, New York, who acted as journal secretary for the jobbers; F. Herbert Smith, the manufacturers' faithful and courteous sergeant-at-arms, and W. W. Birge, who acted as chairman of the manufacturers' Press Committee.

E. C. Atkins & Co. distributed to the delegates cards of invitation inviting them to visit the concern's new

Memphis branch store, where they gave out their souvenir, a Compass Saw in an attractive fancy box. Invitations were also issued by Benedict, Warren & Davidson Company to visit their offices and salesrooms. The handsome establishment of the Barnes & Miller Hardware Company, with windows handsomely dressed for the occasion, was only a door or two from the Gayoso Hotel, and was visited by many Hardwaremen who were most cordially received.

Both the Western Union and Postal Telegraph companies offered the free use of their lines during the week to the members of the associations for personal and social messages. This courtesy was much appreciated, and was taken advantage of by many.

PRESIDENT ASBURY'S ADDRESS.

The annual address of President C. W. Asbury of the American Hardware Manufacturers' Association was substantially as follows:

Abuse of Cash Discount Terms.

Following the plan set forth in detail in the last annual report of your officers, there have been few complaints of abuses of cash discount terms. From the fact that the number of these complaints was greatly reduced as compared with the previous year, we think we are justified in concluding that the worst instances of such abuses have been corrected. There is only one feature of this subject remaining undetermined, and that is the request which was submitted to your convention in June last at Hot Springs, Ark., from the American Exporters' and Importers' Association, that a certain resolution then submitted should be approved by you. Action upon this resolution was deferred until this convention in order that the membership might be fully informed as to the meaning and intent of the resolution in question. This resolution will be submitted to you under the head of unfinished business.

It seems to your officers that the very submission of this resolution is evidence that not only the members of this association, but other manufacturers generally, are adhering very strictly to the 10 day period in which cash discounts are allowed. It is hoped that you will give to the request of the American Exporters' and Importers' Association thoughtful consideration.

Cost Keeping Systems.

In the matter of promoting modern cost keeping systems among the members, we have to report excellent progress. The instructions given by you to your officers have been followed with good results. The plan adopted was to secure good, reliable business economists, thoroughly familiar with manufacturing conditions and cost keeping systems, especially in Hardware and affiliated lines. Some of our members reported having had very satisfactory experiences, and based upon these experiences your officers felt warranted in issuing a series of circular letters to the members, advising them that the association was in position to be of very material assistance along those lines, expressing particularly the reasons why such a course would be found profitable. To those who expressed an interest in the subject assistance was given, and in a number of instances the business economists succeeded in providing plans of management which included cost keeping systems, with a large degree of satisfaction to the members taking the step. We have heard no complaints, but, on the other hand, there has been commendation to a considerable degree. We feel that the expressions in our last annual report as to the desirability of this step should be emphasized and reiterated, and we suggest continued activity along those lines. This seems to be a subject of great importance, and one which will bring very profitable returns to those who take advantage of the association's work, which, of course, is open to all members.

Watching Federal Legislation.

Another line of activity suggested at the convention in June last has received the attention of your officers, and upon which it is a pleasure to report at this time. It was then pointed out that Federal legislation should be watched and the membership advised of the introduction of such bills as might affect their interests favorably or unfavorably. Your officers have taken such steps as were necessary to provide that this information be sent promptly and currently to our New York office, and from there disseminated among our members. You of course appreciate that there has been no session of Congress since our last convention, hence the activities on this line of work have not as yet begun; although the plan is provided by which it may be done. I recommend that this receive the careful consideration of your incoming officers.

At the Last Session of Congress

quite a number of bills were introduced and seriously considered in committee which bills if they became law would

involve a very long, stubborn and bitter fight before a decision could be reached by the Supreme Court as to their constitutionality. In the meantime the business of every large industry would either suffer a large loss directly or would be subjected to the danger of incurring such loss at any time. As reported to the June convention, your officers at that time assumed the responsibility of using the influence of this association for or against such proposed legislation as the interests of the Hardware manufacturers appeared. This action was approved and your officers were instructed to continue the work in a proper way. The general plan provided for carrying into effect the wishes of the membership appears to be sufficient along general lines, but there is a special line upon which such authority could not be assumed.

Proposed New Tariff Bill.

The special line referred to is the likelihood of an early consideration of tariff schedules in the preparation of a new tariff bill. We believe that the calling of Congress in special session in March next is being considered, the object being to make an early start in the work of revising the tariff.

General work might well be done by this association in joining others for the reasonable protection of industries in general, but we, as a body, are hardly in position to advise upon specific schedules. In theory these schedules should be arranged to provide a duty which shall be equal to the difference in costs of production at home and abroad, and if the tariff is to be a protective one there should be added a reasonable margin to cover contingencies and possible differences in these costs. It would seem to be obvious that definite work upon schedules cannot be done by this association, as each line of goods would have to be technically considered in order to arrive at the cost.

Attention is called to this matter, as it may be and probably will be necessary for individual members to watch carefully the progress of the making of the tariff bill. Of course it is clearly obvious that the influence of such an important body of manufacturers as this can well be directed in the line of providing protection to a reasonable degree, as a general proposition. I am sure your officers are ready and willing to use this influence whenever it can be shown that the interest of the membership will be served by it.

Permanent Tariff Commission.

This association has been asked to lend its influence to and join forces with other organizations which are urging the selection of a permanent commission to advise Congress in tariff matters; but so far it has been deemed unwise to join in that activity, for the reason that the making of a tariff bill is such an exceedingly complicated matter it would seem to be almost impossible to consider fairly and judiciously every separate item of costs. The kinds and varieties are so very numerous, and many of them are wholly unimportant. It would, therefore, seem that the work of such a proposed commission would be enormous. This information is given to you with the thought that you might desire to give to your officers definite instructions thereon.

Co-operation.

In the report submitted to your convention in June last will be found a detailed reference to the co-operation sought to be had with similar organizations as well as with the organizations of our customers in Hardware. It is a pleasure to be able to report that our relations with associations of retailers and associations of jobbers in the Hardware trade are most cordial and that we enjoy the confidence of these correlative interests.

Jobbers' Special Brands.

There continues to be, however, one subject about which it is but natural that there should be honest differences of opinion existing, and that is the continued use of jobbers' special brands in place of the manufacturers' own brands. The differences of opinion referred to are naturally dictated by self-interest. An impartial view of the matter from undisputed evidence justifies the conclusion that the same measure of reliance upon quality cannot be placed upon goods bearing any other brand than that of the originating manufacturer. It seems to be obvious that the manufacturer would be jealous of his reputation, and would see to it that his own brand was placed on goods of the highest merit; whereas, when making similar goods under contract, which goods do not bear his name, it is but natural that he should practice every economy in manufacture, especially when he realizes a comparatively low price for the contract goods. It would seem as though he was not properly open to criticism for such a course, because it must be remembered he is driven by the purchaser into the keenest possible competition and is forced to economize in the manufacture.

It is not my purpose to discuss this subject at great length because it was very ably and exhaustively treated by my predecessor. Attention is called to it, however, in the hope that our members may yet see the unwisdom of a complete loss of their identity with special brand goods, and a proportionate loss of the good will value of the respective

businesses. If the members desire to use the influence and prestige of this association for the protection of manufacturers' names and brands I am confident that your officers will be willing to vigorously pursue any suggested plan by which this may be accomplished.

Amendment of Our Patent Laws.

One other subject which is attracting considerable attention is the question of the amendment of our patent laws. Very recently an amendment to the English patent laws was put into effect and it is still too early to have experienced the definite result of the enactment. Foreign inventors obtaining United States patents are treated in precisely the same way as American inventors; the same fees are charged, without subsequent taxes of any kind, and there is no discriminating provision which requires the manufacture of the invention within our own borders in any specified quantity or within any specified time.

An American inventor, on the other hand, applying for and obtaining patents from some foreign countries, among which are the principal industrial competitors of the United States, are subjected to conditions which require the manufacture of the invention within the foreign territory within a specified time, and in quantities sufficient to supply the maximum of their own demands. He is also subjected in some instances to an annual tax, a refusal or neglect to pay which will invalidate the invention.

In view of these conditions the question which has become quite prominent is as to whether or not the patent laws of the United States should not be amended to include some such conditions against foreign inventors as apply to American inventors in foreign countries. This question is submitted for your consideration, and any line of procedure you may desire taken will be followed.

ADDRESS OF PRESIDENT WRIGHT.

In his annual address President W. S. Wright of the National Hardware Association touched on many live topics of national importance. He said in part:

The conditions prevailing since our last meeting have been exceptional. At that time dark clouds were lowering and doubt and anxiety were in the air. Looking backward we can see that it was an hysterical financial colic, which has been notwithstanding the embarrassment it created a benefit rather than the reverse. Those who kept their nerve and their help have suffered least. Those who lost one and dismissed the other have paid the penalty, but we hope the experience was worth the price.

Looking Forward.

we can see nothing to cloud a bright and prosperous future. During the past year the surplus stocks of jobbers and retailers alike have been reduced to a lower point than for many years past. The results of the election have swept from financial and business circles all clouds of doubt and fear that have retarded complete restoration of business activity.

With a crop that is in excess of the average, with price in nearly all farm products greater than ever before in the history of the country, and with the assurance of a safe, conservative but progressive administration, that as shown by the election returns commands the confidence and support of all classes alike it would be a rank pessimist indeed who did not look forward for the next four years to establish a new record in all lines of business activity and development.

The wheat has been separated from the chaff. The financial situation is strong, and those who have the goods—manufacturer, jobber or retailer—can move them at a fair margin of profit. The time is ripe for pessimists to move to the rear, optimists to the front.

Market Strength During a Critical Period.

The condition that has impressed itself on the trade during the past year is the strength of the market in view of the marked depression in manufacturing lines. The credit for this has been largely and justly claimed by the Iron and Steel manufacturers, but without detracting in the slightest degree from the credit due them and many other manufacturers for their wise and conservative policy in maintaining the market due credit should be given to this organization, which has not only supported and encouraged this policy with the Iron and Steel manufacturers, but have suggested, supported and made possible the same advantage to many other lines that without this co-operation and support would have been unable to maintain their position.

Jobbers' Support.

While this has benefitted the jobber it has been of greater advantage to the manufacturer, and if ever the corner stone of this association, namely, "The promotion of more friendly business relations and mutual confidence and good will with each other and with manufacturers," has been tested as by fire and has justified its advantage to its members and to its friends, the manufacturers, it has been during the past year.

The Work of the Association

since our last meeting has been energetic, forceful and progressive. The members have shown a stronger and broader

spirit of active co-operation and support than ever before. This has been appreciated and our sincere hope is that it will be continued and increased. Do not fail to bear in mind that this association is yours. It belongs not to the officers but to the members. The officers neglect their own business in order to forward the best interests of the trade, and it certainly is not asking too much of each individual member to give the same attention and support to the work of the association that they give to other details of their business.

Only by persistent, united, associated effort and by the active assistance of each individual member may we hope to accomplish the best results, but with this no fair reasonable proposition is impossible or would have serious consideration without it.

Passage of a Parcel Post Bill Would Be a National Crime.

The next Congress will without doubt be again urged to favorably consider the question of establishing a parcel post. This subject is one I believe that should have more active, aggressive support and action from jobbers and manufacturers alike than has been given in the past. It is a national question that bears as strongly on future prosperity and development as the tariff.

The passage of a parcel post bill in my judgment would be neither more or less than a national crime, resulting in a moral, physical and mercantile paralysis over a large section of the country whose future development and prosperity must rest not on centralization and congestion of population, but on the development of the country town, village and hamlet, where the interests of the farmer and the village residents are united to the development and advantage of both.

A Broad View Necessary.

It should not be opposed from the narrow standpoint of its effect on any line of business, because if it were an economic question for the benefit of the many to the detriment of the few, opposition would be useless, but it is an important fact that has no part in American development.

The Government may decide to carry 11 lb. of merchandise from the Atlantic Coast to the remote regions of the Pacific for 25 cents, but that will not reduce the cost of the service, but only place the burden of the difference between the cost and the charge on other shoulders and favor one class at the expense of another.

It is class legislation and it is inconsistent with the policy of our Government to father paternal legislation or to engage in freight transportation, and a partnership between the Government and the mail order houses, the one furnishing the capital and the other the experience, would unquestionably result as in mercantile life, where under similar circumstances capital and experience invariably change hands.

In Memoriam.

The Grim Reaper has not spared us during the past year, but has taken from among us those whom we loved and honored, and I will ask you to kindly rise while their names are read:

Henry W. Cortes, president, Bering & Cortes Hardware Company, died October 4, 1908. Mr. Cortes was one of the most prominent business men of Texas, esteemed and respected by his associates and friends and active in the commercial and religious life of his city.

John C. Koch, president, John Pritzlaff Hardware Company, Milwaukee, Wis. Mr. Koch was first vice-president of the association for many years. Quiet, but alert and thoughtful, his genial disposition combined with his sound judgment, made him a valued counselor as well as an esteemed friend and associate. His presence and counsel will be missed by the officers and members of this association.

REPORT OF SECRETARY FERNLEY.

Following are extracts from the annual report of Secretary-Treasurer T. James Fernley of the National Hardware Association:

We do not await the annual convention of this association to render reports; as you know, it is our plan to report to you almost daily. At the risk of having the unknowing ones or those who forget smile at our modesty we would state that we have addressed you during the past year 178 times. We know of no organization which keeps its membership more fully advised concerning its work, and it is due in part to this fact that our association is generally considered to be the strongest trade organization in this country.

We are pleased to state that our membership has increased; last year we reported 189 and now we have 201 members. It has been the policy of our membership committee to be very conservative, and only to admit to the organization such jobbers of Hardware as would add strength to the association.

Our finances are in good condition, the expenses being practically within our income and we have a substantial balance on hand for future work.

We have in all the activities of the year had before us the resolutions of previous conventions, and have done nothing

which we did not consider our duty in carrying the same into effect.

Mail Order and Catalogue House Competition.

At our last convention the subject of reproducing prices made by various classes of dealers in printed form was very thoroughly discussed, and the convention expressed the opinion that the information which had been sent out during the previous year was of value, and if it was consistent with proper observance of existing laws, the secretary-treasurer should arrange to advise the membership concerning net prices issued in printed form that were on a basis which prevented the obtaining of a proper margin of profit.

We immediately consulted eminent legal authority as to how we could work under this resolution and strictly maintain existing laws. We sent you a copy of the opinion of John G. Johnson, our attorney. You will recall that this authority advised us that we had a legal right to reproduce prices quoted by these parties, and that it was certainly the privilege of our members to attempt to purchase goods at prices which would enable us to meet such competition.

Jobbers' Position as to Prices.

We have taken the position that if manufacturers permit catalogue houses to quote their goods to consumers at a price which makes it impossible for the retail merchant to compete, that it is the privilege of the jobber to take such price as the basis for the retailer, and insist on obtaining a price which will enable him to sell the retailer so that the catalogue house price can be met and a proper profit reserved for retailer and jobber.

We have requested the manufacturers to take prices made by mail order houses as a basis of the proper price to the trade and to give the jobbers a price which will permit them to meet such competition. It has been admitted that our position is sound, reasonable and equitable.

An Examination of the Catalogues

issued by the leading concerns engaged in soliciting the trade of the consumer, through the medium of a catalogue, will disclose a marked change. Standard brands of goods have given way to special brands which are unknown to the consuming community, and which in most instances are of a quality which will not lead to a large duplication of orders. We ascribe this result very largely to the work of this organization begun several years ago, and more vigorously pushed forward by the Wholesale and Retail Hardware Joint Committee.

We recommend that the members of our association obtain copies of the catalogues in question and see for themselves what has been done, and also keep advised as to the lines of goods of some few prominent manufacturers still being shown in these catalogues.

Syndicate Buyers.

During the year we have reproduced the prices issued by several concerns engaged in syndicate buying, but who had as clients certain parties whose competition was annoying to the mass of retail merchants. We find that in many cases the manufacturers had no relations with such syndicate buyers, and prices were made without any responsibility of furnishing goods in the event of orders being offered. Most of our manufacturing friends show an earnest desire to protect the jobbing and retail trade from the demoralization caused by these parties. Three syndicate buyers have submitted their lists of clients to your secretary-treasurer and are refusing to operate for any of whom he does not approve.

Our association has never taken any action approving or disapproving of the syndicate buying system. You have simply instructed your secretary-treasurer to endeavor to keep the lists of these buyers free from any who are not entitled to be called jobbers. One of the syndicate buyers who was a party to the New Orleans understanding, withdrew from the same, and members of our association are aware of the present policy of this particular buyer.

Manufacturers' Competition.

We find that a few manufacturers still endeavor to sell all kinds and classes of trade. It is interesting to note that the same manufacturer who ignores the jobber is in the habit of infringing the rights of the retailer, selling the consumer direct at extreme prices. We recommend that our association obtain all such prices quoted the consumer and keep the jobbers and retailers informed of the prices that confront them.

Selling Policy.

During the year we have conferred with some manufacturers' associations, but owing to a desire on the part of many to respect the Sherman Anti-Trust law there are not existing at the present time as many combinations as in former years. We have, however, been consulted by a very large number of manufacturers concerning the policy which it was thought would be most pleasing to the jobbing trade, and it will doubtless be with much satisfaction that you learn of an increasing number of manufacturers who use this organization as a medium through which to obtain information concerning a proper selling policy.

Jobbing List.

We are also being consulted with great frequency by individual manufacturers concerning the personnel of their jobbing list; at all times we endeavor to decide these questions in a way which will convince the manufacturer of our desire to be equitable and just, both to our membership and those who are not connected with us.

Parcel Post Opposition.

The Hardwaremen of the country are still the leaders in opposing the adoption by the Government of any character of a parcel post. It is very pleasing indeed to be able to report that during the past year quite a number of other trade organizations have followed our lead, so that to-day many thousands of merchants who had an idea that a parcel post might be advantageous to their interests are now convinced that the establishment of such a system simply would mean the building up of the great mail order houses of the country and the impoverishment of the great mass of retailers scattered throughout the length and breadth of our land. The advocates of the parcel post are vigorously at work and it will require great activity on our part during the approaching year to prevent their meeting with success.

Cash Discount.

In carrying out your resolution expressing the opinion that a discount of 2 per cent. for cash in 10 days was a rule of the trade, which should be respected by all from whom you purchase, we have since our last convention addressed all those who were not allowing this discount. Early in the year the Bolt manufacturers yielded to our request and returned to the 2 per cent. A very large number of manufacturers have recognized that our request was a proper one, so that at the present time a very few are insisting on less favorable terms. We have not requested manufacturers to lower prices, but simply to readjust them so that this discount could be allowed.

The statement has been made, and we fear not without truth, that some jobbers have ignored the time limit and insisted on the discount. We hope that our members will always respect the time and not ask for the premium unless they give the manufacturers that for which it is offered.

It is very pleasant to report that practically all goods handled by the Hardware jobbers are now on a basis of 2 per cent. for cash, 10 days, the exceptions being Bar Iron, Steel, Brass and Copper.

ADDRESS OF A. T. STEBBINS.

At an open meeting of the manufacturers an able address was delivered by A. T. Stebbins, Rochester, Minn., president of the National Retail Hardware Association. We give the following extracts from Mr. Stebbins' address:

There is no field of human activity in which ideals are applied of more value than business. To be sure we may not hope to attain the ideal, but we can by co-operation make the real nearer the ideal. There have been wonderful advancements and changes in business methods during the last few decades. I often think of the conditions that existed at the time I first entered a Hardware store as a clerk. This was in 1866.

Forty Years Ago

the building and fixtures compared favorably with our competitors, but compare them to modern stores, with their plate glass windows and attractive displays, Steel ceilings and modern show cases and fixtures, then note the change. Methods of buying, selling and paying for goods have worked even a far greater change. Traveling men were unknown in those days; goods were ordered by mail in large quantities, thus requiring larger stocks to be carried by the dealer. The popular brands of those days are practically unknown to the clerk of to-day: Wostenholm's Pockets, wrapped in paper; Wade & Butcher Razors; mechanics' tools, made in Sheffield; Screws from England, wrapped in paper, instead of boxes, with a sample Screw tied on the outside to indicate the size; Tin plate from Wales; Sheet Iron from Russia; Tin ware made in local shops; Nail Rods, from which the blacksmiths made their Horse Nails.

There were few trade papers and no Hardware association. There were no 60 days, 2 per cent. off 10 days, but a running account pay as you can method. Who would care to go back to such a condition in the business world, and who will say that this world is not growing better day by day?

A Hint as to Packages.

Speaking of packages, while I do not wish to presume to tell you gentlemen how to put up your goods yet I sometimes wish I could have you in my store for a year. I am sure you would endeavor to make the retail merchant's life a little more pleasant by using stronger and neater packages with attractive labels, with plain characters and letters, with a space for cost and selling price. You would also mark the boxes so that the contents could be read without

the use of a magnifying glass; you would not put labels on the top of packages so they could not be seen when on the shelves.

You would put Nuts on the Bolts as of yore, so that the retailer would not have to spend his time in doing this before he can effect a sale. You would strive to improve the quality and appearance of your goods rather than allow some of them to deteriorate.

Why Should Prices Advance?

One word in regard to prices, and I am done telling you how to run your business. Mention is often made of late that prices are going to advance. This sets the retail merchant to wondering how it is that with raw material reduced, of which the consumer has a definite knowledge, the manufacturer can offer a good reason for this position. Is it from a desire to gather in a goodly portion of this wave of prosperity which is predicted? You may arrange prices with the jobber to his satisfaction, but have you considered the consumer and have you taken the retailer into your confidence? Kindly consult the Farmer's Bible, which adorns his center table, entitled "The Great Price Maker." Put yourself in the retailer's place if you can and we leave the question to you to answer.

Vehicles of Commerce.

There are four distinct elements that enter into all trade relations: the manufacturer, the jobber, the retailer and the consumer. They may be likened unto the sturdy, reliable four-wheel vehicle. There is an element in the business world that would eliminate two of these wheels—the jobber and retailer—and substitute in place thereof the catalogue house. Would this three-wheel vehicle take the place of the reliable four-wheel one in moving the commerce of the world? Might not the three-wheel affair become easily upset when meeting obstacles that the four-wheel could successfully overcome? Occasionally there crops out a desire to eliminate the third wheel and leave but two—manufacturer and consumer. This commercial vehicle would, like the unsteady Bicycle, be subject to all sorts of difficulties and land the country in the mire of turmoil. The proposition is not an economic one, hence not to be so considered.

Recollections and Hopes.

In contemplating this subject recollections and hopes crowd upon us. The past and the future are brought close together, and the question arises how can the time honored four-wheel vehicle maintain all its splendid prestige? Our answer is by an economic distribution and a square deal to all. If our Government deems it an injustice for railroads to discriminate in favor of a certain few shippers as against the many why is it that it should be right for retail merchants, who do not issue catalogues, to be discriminated against and in favor of those that do?

Equal Footing as to Prices.

We ask no special favors, but we do ask that we be put on an equal footing regarding prices with our retail competitor, the catalogue house, when we will be enabled to fight our own battles successfully. Too much importance cannot be attached to this proposition. It is a matter of deep concern to manufacturers, jobbers and retailers alike. If the retailer cannot maintain his existence certainly the jobber cannot. If the retailer finds so much of his business gone as to make it unprofitable, the brightest and most progressive of them will seek other occupations, leaving the shopkeeper to do the business, who not being as progressive will not create the demand for your goods. It is the everlasting push of the retailers organized as they are to-day which constitutes the greatest selling force every known. They create the demand for your product. Remove this element and the output would be materially decreased.

United Effort.

Why then is it not for the interest of all three organizations to join in a strong endeavor to put the retailer on the same basis as to prices with the catalogue house? Did you ever think that there are 25,000 retail merchants working for you from early morn until late at night creating a desire and subsequent purchase by the consumer of the goods you manufacture, and thus it is that the retail merchant makes it possible for you and the jobber as well to do business.

Parcel Post Detrimental to the Nation's Welfare.

It would not be the popular or proper thing these days in addressing a trade convention not to refer to the parcel post proposition, which question seems far from being settled. While this subject has been discussed by able writers and debaters it cannot be too often brought to our attention. Your position upon this question is well known. We all believe that the introduction of the parcel post in this country would have a decidedly damaging effect upon the future of American progress and civilization. But are we doing what we should to head off this proposed legislation? We do not place our opposition to this measure upon any selfish ground but upon the broad ground of its being detrimental to the nation's welfare.

We all know what interests are back of this movement.

Some may say the farmers want it. Most of the farmers that say they do get their ideas from the farm papers, who are the recipients of catalogue house advertisements; hence, the more prosperous the catalogue house, the larger their bank account. It is argued that the now proposed parcel post scheme only contemplates the service being put in operation on rural routes from local post offices.

Its Introduction Dangerous in Any Form.

The honorable Postmaster-General has, we know, cut his proposition from a general domestic system to a local one to meet the objections that have been raised to the former, but he tells his sympathizers to be satisfied with this in order to get a start, when it will be easy to extend it. Some years ago a gentleman in Australia imported a pair of Belgian hares, thinking they would be a fine asset to the community. Now the Australian Government is spending thousands of dollars in an effort to exterminate them. A man in Boston, out of idle curiosity, presumably, housed some imported moths of a certain variety in a box in his back yard. A windstorm blew the box over, the moths escaped, and now Massachusetts and other New England States are spending vast sums to rid the country of these pests. So it will be with the parcel post. It will be far easier to keep it out of the country than to stop its progress after once introduced.

Conditions Different in Parcel Post Countries.

The Postmaster-General tells of its introduction in foreign countries, but he does not tell us of the different conditions that exist there, the difference in the length of the haul being but 40 miles, while in this country it would be more than 19 times that distance. In some of the countries he refers to, the Government owns the railroads, and in others there are no express companies and transportation is slow and unsatisfactory at best. Neither does he tell us of the dissatisfaction and unrest that exist, and when the law makers are appealed to the answer comes back, "you are too late, gentlemen."

A Socialistic Step.

Again, it is not in accordance with the principles of our American institutions for the Government to engage in the transportation business. The proposition from this standpoint is a dangerous one and a step towards socialism. The Government might, with equal propriety, engage in the manufacture of Hardware or any other article of commerce.

Wiping Out the Postal Deficit?

It is inexpedient also from a financial standpoint. The Postmaster-General has but recently announced that the deficit in his department for the fiscal year ending June 30, 1908, amounts to \$16,910,279. He also in this connection makes the statement that in his annual report he will call the attention of Congress to the fact that he is firmly convinced that the establishment of a special local parcel post would tend to wipe out the postal deficit, besides being of convenience to the farmer and a boon to the retail country merchant. That sounds plausible, does it not? To a politician it might look like a good scheme to trap the unthinking and catch votes. Let us examine these propositions briefly, first, as to the parcel post being the means of wiping out the deficit.

According to the statistics published by the Chicago Post Office for the fourth class-matter during October, 1907, the profit to the Government was \$9.79 a ton, or practically $\frac{1}{2}$ cent a pound. In other words, it cost the Government $15\frac{1}{2}$ cents a pound to carry fourth class mail matter, according to the weighing of the Chicago Post Office. Supposing the Postmaster-General's proposition to reduce from 16 to 12 cents per pound the charges on this class of merchandise, it would create a deficiency of \$7 a ton. In view of these statistics, does any sane man believe that the Government could carry merchandise for $2\frac{1}{4}$ cents a pound and not increase very largely the deficit? H. A. Castle of Minnesota, formerly auditor in the Post Office Department at Washington, a man whom I know very well, estimates that on the 11 lb. for 25 cents rate, the annual deficit would be \$100,000,000 for transportation alone.

The Farmer's Convenience.

How about the convenience to the farmer? I have personally talked with rural carriers, nine of whom leave my city every week day morning, and they tell me that while they are permitted to carry merchandise exceeding 4 lb. in weight they seldom make a charge unless it be for heavy packages. Sometimes the patrons along their routes will about holiday time throw a turkey or a sack of oats in their rig, but while they do all the errands asked of them the remuneration is comparatively small. What convenience then does the now proposed parcel post offer the farmer that is not granted them now? Absolutely none.

A Serious Situation.

As for the boon to the retail country merchants, do you know of any one who clamors for it? I do not, but on the contrary they are opposed to it and on broad, patriotic grounds. As these arguments of the Postmaster-General fall to the ground kindly tell me if you can the real motive that prompts his activity? Many more points might be

raised against the parcel post scheme, but I have already wearied your patience. The situation demands our earnest and active attention. Every one interested should write his member of Congress on the subject. It is not enough that you think your members are right on this question. Letters by the thousand are pouring into the hands of Congressmen, mostly stereotype petitions, furnished by the farm papers and signed by farmers. A Congressman informed me that the opposition to the parcel post needed to get busy and let their protest be known, else Congress, judging by the correspondence just alluded to, would think the people demanded it.

The President's Influence.

We would very much like to have your organization discuss the propriety of sending a delegation to Washington to interview the President. The retailers I am sure will join you in such a movement. It is rumored that the President in his message to Congress will indorse the recommendation of the Postmaster-General. In a previous message he did recommend it, but with a proviso that if it could be shown that it would injure the retail merchants and the rural communities he would not favor such a proposition. While various trade organizations have written the President declaring their objections to the measure personal interviews are much more convincing.

THE ATTENDANCE.

Manufacturers.

AMERICAN AXE & TOOL COMPANY, Glassport, Pa.: C. W. Hubbard, Jr., W. T. Johnson.
 AMERICAN CAN COMPANY, New York: E. R. Philip.
 AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: P. H. Withington, T. H. Russell, F. S. Kretsinger, H. L. Durell, T. T. Hitch, Cyrus Reimer, C. H. Windt, A. E. Huntley.
 AMERICAN IRON & STEEL MFG. COMPANY, Lebanon, Pa.: Chas. P. Klog.
 AMERICAN PULLEY COMPANY, Philadelphia: H. P. Chenoweth.
 AMERICAN SALES COMPANY, Chicago, Ill.: C. K. Anderson, Frank Low.
 AMERICAN SCREW COMPANY, Providence, R. I.: W. G. Smythe, Henry A. Taylor.
 AMERICAN SHEAR & KNIFE COMPANY, Hotchkissville, Conn.: J. H. Keating.
 AMERICAN SHEET & TIN PLATE COMPANY, New York: W. J. Wetstein, W. H. Eaton, W. T. Shannon, T. A. Gessler, J. I. Andrews.
 AMERICAN STEEL & WIRE COMPANY, Chicago: F. Baackes, D. A. Merriman, T. H. Taylor, T. B. Coles, George D. Kirkham, W. H. Foege.
 AMERICAN WRINGER COMPANY, New York: G. H. Jantz, S. Bradley.
 AMES SHOVEL & TOOL COMPANY, Boston, Mass.: Julius C. Birge, Arthur B. Birge, Hobart Ames, C. H. Myers, S. S. Early, Lynford Rowland, C. S. Hubbard, H. M. Myers, H. A. Urban, J. P. Tabb.
 ATHA TOOL COMPANY, Newark, N. J.: Edward S. Ross, Henry G. Atha, Edward Ingalls.
 E. C. ATKINS & CO., Indianapolis, Ind.: N. A. Gladding, W. L. Sanford, J. F. Carey, G. R. Stafford, W. P. Brown.
 ATLANTIC SCREW WORKS, Hartford, Conn.: F. N. Tilton, A. W. Bowman.
 ATLANTA STEEL COMPANY, Atlanta, Ga.: J. T. Rose, T. B. Davies.
 AVERY STAMPING COMPANY, Cleveland, Ohio: Henry W. Avery.
 BAKER-MCMILLEN COMPANY, Akron, Ohio: E. H. James.
 BALDWIN FORGING & TOOL COMPANY, Columbus, Ohio: Frank M. Baldwin.
 G. & H. BARNETT COMPANY, Philadelphia: Alfred W. Barnett.
 BELFONTE IRON WORKS, Ironton, Ohio: S. G. Giffillan.
 BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Louis E. Dietz, Wm. C. F. Dietz.
 BRYDEN HORSE SHOE COMPANY, Catasauqua, Pa.: W. M. Brezette, Geo. E. Holton.
 CARNEGIE STEEL COMPANY, Pittsburgh, Pa.: W. G. Clyde, I. W. Jenks, W. F. Hickey.
 CARVER FILE COMPANY, Philadelphia: Joseph M. Hottel, Edward M. Kemp.
 CHALLENGE CUTLERY CORPORATION, New York: W. M. Taussig, F. S. Seeley.
 JOHN CHATILLON & SONS, New York: D. P. Hale.
 CLEVELAND STONE COMPANY, Cleveland, Ohio: H. W. Caldwell, A. W. Curtis.
 CLEVELAND TACK WORKS, Cleveland, Ohio: W. G. Ross.
 CLEVELAND TWIST DRILL COMPANY, Cleveland, Ohio: J. G. Pasco.
 CLYDE CUTLERY COMPANY, Clyde, Ohio: R. B. Jones.
 COLUMBIAN ENAMELING & STAMPING COMPANY, Terre Haute, Ind.: G. W. Jeffords, W. H. Pipp.
 COLUMBIAN ROPE COMPANY, Auburn, N. Y.: F. M. Everett, W. V. Hawkins.
 P. & F. CORBIN, New Britain, Conn.: Charles M. Jarvis, Charles H. Parsons, Charles B. Parsons, W. E. Bartholomew, Geo. L. Haven.
 CORBIN CABINET LOCK COMPANY, New Britain, Conn.: C. H. Baldwin, W. H. Booth, D. O. Macquarrie, J. T. Dowell.
 CORBIN SCREW CORPORATION, New Britain, Conn.: Charles Glover, Wm. E. Diehl, C. A. Earl.
 CONSOLIDATED FRUIT JAR COMPANY, New Brunswick, N. J.: Thos. J. Buckley, E. M. Gilmore, L. Frank Clark.

- CRONK & CARRIER MFG. COMPANY, Elmira, N. Y.: C. F. Carrier.
DAISY MFG. COMPANY, Plymouth, Mich.: C. H. Bennett, A. W. Chaffee.
DANA MFG. COMPANY, Cincinnati, Ohio: George F. Dana, Frank M. Snook.
DELTA FILE WORKS, Philadelphia: J. M. Hottel.
HENRY DISSTON & SONS, Philadelphia: Harry C. Disston, Robert J. Johnson, S. Horace Disston, Frank Gould, D. W. Jenkins.
E. I. DUPONT DENEMOURS POWDER COMPANY, Wilmington, Del.: T. E. Doremus, J. T. Skelly, W. F. Quimby, Geo. S. Parkes, J. F. Van Lear, Levi Joy, Eugene duPont, J. N. Riley.
EAGLE LOCK COMPANY, Terryville, Conn.: G. W. Carter, H. B. Plumb, F. D. Ford.
EMPIRE KNIFE COMPANY, Winsted, Conn.: S. L. Alvord.
ENTERPRISE MFG. COMPANY, Philadelphia: Charles W. Asbury.
EVANSVILLE TOOL WORKS, Evansville, Ind.: F. Lohoff.
FERROSTEEL COMPANY, Cleveland, Ohio: A. E. Menke.
FOSTER BROS. & CHATILLON COMPANY, New York: C. E. Foster.
GLOBE-TAUNTON NAIL COMPANY, Taunton, Mass.: J. A. Welsh, J. C. Lullman.
GOODSELL COMPANY, Antrim, N. H.: D. H. Goodell, R. C. Goodell, G. W. Hodges.
GOODSELL-PRATT COMPANY, Greenfield, Mass.: Wm. M. Pratt.
GRAFTON STONE COMPANY, Elyria, Ohio: F. S. Miller.
GRAHAM NUT COMPANY, Pittsburgh: Chas. J. Graham, Chas. W. Gray.
GARLAND NUT & RIVET COMPANY, Pittsburgh: Robert Garland, W. C. Winterhalter.
GILBERT & BENNETT MFG. COMPANY, Georgetown, Conn.: Charles J. Miller, David H. Miller, Jr.
GREENLEE BROS. & Co., Chicago: W. H. Bowers.
GRIFFIN MFG. COMPANY, Erie, Pa.: R. M. Lee.
C. T. HAM MFG. COMPANY, Rochester, N. Y.: James Barnes.
HARRINGTON & RICHARDSON ARMS COMPANY, Worcester, Mass.: Geo. F. Brooks, F. B. Park, Wm. Camier.
M. HARTLEY COMPANY, New York: E. E. Drake, J. M. Gaines.
HART & COOLEY COMPANY, New Britain, Conn.: Howard S. Hart, Norman P. Cooley, James H. Robinson.
HEMP & Co., St. Louis, Mo.: J. L. Hemp.
HERO FRUIT JAR COMPANY, Philadelphia: Hutton Kennedy, Howard G. Pinney.
HUSSEY-BINNS SHOVEL COMPANY, Pittsburgh: George V. Willson.
IRON CITY TOOL WORKS, Ltd., Pittsburgh: William H. Hays.
IRWIN AUGER BIT COMPANY, Wilmington, Ohio: F. S. Colvin.
IVER JOHNSON'S ARMS & CYCLE WORKS, Fitchburg, Mass.: Fred I. Johnson, Geo. F. Salisbury, Frank I. Clark.
JONES & LAUGHLIN STEEL COMPANY, Pittsburgh: Roland Gerry.
KELLY AXE MFG. COMPANY, Charleston, W. Va.: William C. Kelly, James P. Kelly, William B. Lockett, George T. Price.
KOKOMO STEEL & WIRE COMPANY, Kokomo, Ind.: J. G. Bowers.
LABELLE IRON WORKS, Steubenville, Ohio: D. M. Montgomery.
LAKE ERIE IRON COMPANY, Cleveland, Ohio: Frank W. Davis.
LALANCE & GROSJEAN MFG. COMPANY, New York: Palmer W. Holmes, James D. Fleming.
LAMB-FISH LUMBER COMPANY, Memphis, Tenn.: J. V. Hill, W. B. Burk, A. G. Fritchey, E. B. McCullough.
LANDERS, FRARY & CLARK, New Britain, Conn.: George M. Landers, Frederick A. Searle, James N. Stanley, Arthur G. Kimball, Fred M. Huggins.
LAWSON MFG. COMPANY, Chicago: W. H. Bennett.
LIVERIGHT BROS., Philadelphia: Arthur K. Liveright, P. C. Abbott.
LOCKWOOD MFG. COMPANY, South Norwalk, Conn.: George E. Eddy.
LOUISVILLE AXE & TOOL COMPANY, Highland Park, Ky.: B. F. Fitch.
LOVELL MFG. COMPANY, Erie, Pa.: A. M. Doll, J. M. Webber, Chas. S. Meacham.
LUDLOW-SAYLOR WIRE COMPANY, St. Louis, Mo.: Frank Low.
LUFKIN RULE COMPANY, Saginaw, Mich.: Robert G. Thompson, S. B. McGee.
LAMSON & SESSIONS COMPANY, Cleveland, Ohio: Geo. M. North, Roy Boffenmyer.
MARKHAM AIR RIFLE COMPANY, Plymouth, Mich.: Edward H. Lewis.
MCCAFFREY FILE COMPANY, Philadelphia: Joseph J. McCaffrey.
MCKINNEY MFG. COMPANY, Pittsburgh: W. S. McKinney, J. P. McKinney, C. M. King, F. A. Smith.
MERIDEN CUTLERY COMPANY, Meriden, Conn.: J. R. Payne.
MILLER LOCK COMPANY, Philadelphia: J. T. Rader, Edward S. Jackson.
MILWAUKEE CORRUGATING COMPANY, Milwaukee, Wis.: L. Kuehn.
MUNDORF CHAIN WORKS, York, Pa.: Geo. W. Mundorf.
NATIONAL ENAMELING & STAMPING COMPANY, New York: Geo. W. Niedringhaus, John J. Mapp, Geo. H. Harper, A. D. McBryde, J. H. Hilsen.
NEW ENGLAND ENAMELING COMPANY, Middletown, Conn.: O. Nelson, H. Ginsburg.
NEY MFG. COMPANY, Canton, Ohio: Frank W. Miller, J. W. Mobley.
NEW YORK LEATHER BELTING COMPANY, New York: George W. Bancroft.
NIAGARA MACHINE & TOOL WORKS, Buffalo, N. Y.: William Schweigert.
NICHOLSON FILE COMPANY, Providence, R. I.: Wallace L. Pond, F. Herbert Smith.
NORTH BROS. MFG. COMPANY, Philadelphia: A. C. Albrecht, Don McMillan, C. W. Doupine, R. P. Boyd.
JAMES OHLEN & SONS SAW MFG. COMPANY, Columbus, Ohio: L. W. Seymour.
OLIVER CHILLED PLOW WORKS, South Bend, Ind.: R. A. Reed, W. A. Weed.
OLIVER IRON & STEEL COMPANY, Pittsburgh: Henry B. Lupton, George T. Bailey.
ONEIDA COMMUNITY, Ltd., Oneida, N. Y.: Alfred Clark, L. A. MacKown, A. M. Kinsley, P. B. Noyes.
OWENSBORO SHOVEL & TOOL COMPANY, Owensboro, Ky.: W. R. Libhart, M. W. Libhart, W. K. McCulloch, Jean W. McCulloch.
CHARLES PARKER COMPANY, Meriden, Conn.: Wilbur F. Parker, William H. Lyon, Frederick Pease, A. W. Proudman.
PAYSON MFG. COMPANY, Chicago: E. T. Harris.
J. C. PEARSON COMPANY, Boston, Mass.: F. C. Ayres, H. A. Jones, R. L. Foster, W. G. Aborn.
PECK, STOW & WILCOX COMPANY, New York: T. H. Gossett.
PEERLESS FOUNDRY COMPANY, Cincinnati, Ohio: George F. Dana, Frank M. Snook.
PENNSYLVANIA RUBBER COMPANY, Jeannette, Pa.: E. D. Girardot.
PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: W. E. Keplinger, F. C. Tuttle, Paul R. Litzke, J. W. Osborne, H. C. Hirschy.
PIKE MFG. COMPANY, Pike, N. H.: E. Warren Smith.
PITTSBURGH STEEL COMPANY, Pittsburgh: William Taylor, W. C. Reitz, R. D. Carver, T. T. Johnson.
PHOENIX HORSE SHOE COMPANY, Poughkeepsie, N. Y.: J. W. Kiser, S. H. Roberts, W. J. Kelly.
FAYETTE R. PLUMB, Inc., Philadelphia: Walter W. Birge, Joseph H. Plumb, J. J. Teeple.
READING HARDWARE COMPANY, Reading, Pa.: J. O. Beneke, W. F. Goodrich, T. B. Hendrickson.
REYNOLDS WIRE COMPANY, Dixon, Ill.: H. G. Reynolds, W. B. Merriman.
RICHMOND CEDAR WORKS, Richmond, Va.: J. Scott Parrish, S. P. Parrish.
ROANOKE STAMPING & ENAMELING COMPANY, Roanoke, Va.: RUSSELL & ERWIN MFG. COMPANY, New Britain, Conn.: B. A. Hawley, R. R. Leeds, T. J. Usher, A. R. Sisson, W. P. Hudson.
SAFETY DOOR HANGER COMPANY, Ashland, Ohio: E. W. Topping.
SARGENT & Co., New York: Geo. F. Wiepert, Edward P. Dunning.
SAVAGE ARMS COMPANY, Utica, N. Y.: Carleton L. Wood, H. E. Haynes, F. P. Kelley.
WM. SCHOLHORN COMPANY, New Haven, Conn.: Dr. J. Hutchinson Hall.
O. P. SCHRIVER & Co., Cincinnati, Ohio: O. P. Schriver.
SENECA CHAIN COMPANY, Kent, Ohio: C. M. Power.
SIMONDS MFG. COMPANY, Fitchburg, Mass.: C. F. Braffett, A. T. Simonds, H. K. Simonds, G. K. Simonds, J. E. Kelley, Geo. T. Curtis.
STANDARD ARMS COMPANY, Wilmington, Del.: F. E. Muzzy.
STANDARD CHAIN COMPANY, Pittsburgh: W. R. Dawson, A. E. Crockett.
STANDARD HORSE NAIL COMPANY, New Brighton, Pa.: Fred S. Merrick.
STANDARD HORSE SHOE COMPANY, Boston, Mass.: George S. Boutwell.
STANDARD TOOL COMPANY, Cleveland, Ohio: R. T. Lane.
STANLEY RULE & LEVEL COMPANY, New Britain, Conn.: Alix W. Stanley, Robert N. Peck, Robert M. Parsons.
J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: A. H. Griffin, J. H. Page, C. E. Roberts.
STANLEY WORKS, New Britain, Conn.: L. H. Pease, A. C. McKinnle, George P. Hart, A. I. Grocock, James Hutchinson, E. R. Swift.
TREDEGAR COMPANY, Richmond, Va.: G. B. Hobson.
TUBULAR RIVET & STUD COMPANY, Boston, Mass.: T. Cavert.
TURNER, DAY & WOOLWORTH HANDLE COMPANY, Louisville, Ky.: C. D. Gates.
UTICA DROP FORGE & TOOL COMPANY, Utica, N. Y.: L. P. Smith.
UNION FORK & HOE COMPANY, Columbus, Ohio: G. B. Durell.
UNION MFG. COMPANY, New Britain, Conn.: M. L. Bailey.
U. S. HORSE SHOE COMPANY, Erie, Pa.: B. S. Fletcher.
UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: J. M. Gaines, J. E. Avery, A. H. Meyerhoff, J. S. Sanders, E. E. Drake.
UNION MFG. COMPANY, New Britain, Conn.: M. L. Bailey.
UNITED STATES CARTRIDGE COMPANY, New York: C. W. Dimick, C. H. Dimick, F. B. Smith.
UNITED STATES HAME COMPANY, Buffalo, N. Y.: H. W. Crandall, H. J. Turner.
UNITED STATES STAMPING COMPANY, Moundsville, W. Va.: J. W. Sleight.
U. S. STAMPING COMPANY, Moundsville, W. Va.: J. M. Sanders.
WABASH SCREEN DOOR COMPANY, Chicago: W. B. Biggers, E. M. Kemp.
WALLINGFORD MFG. COMPANY, Wallingford, Vt.: W. A. Graham, W. D. Batting.
WARD-DICKEY STEEL COMPANY, Indiana Harbor, Ind.: W. C. Dickey.
J. D. WARREN MFG. COMPANY, Chicago: J. D. Warren, B. W. Haverfield.
L. & I. J. WHITE COMPANY, Buffalo, N. Y.: John G. H. Marvin.
WHITE MOUNTAIN FREEZER COMPANY, Nashua, N. H.: Lester F. Thurber, K. I. Stucke.
WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Irby Bennett, Frank G. Drew, Geo. H. Hillman, E. W. Lee.
WOODHOUSE CHAIN WORKS, Trenton, N. J.: John H. Woodhouse.
WOOD SHOVEL & TOOL COMPANY, Piqua, Ohio: James P. Curd, S. S. Gould, C. M. Avery.
WRIGHT WIRE COMPANY, Worcester, Mass.: Geo. M. Wright, J. F. Searle, J. J. Collins, A. B. Peavey.

WYOMING SHOVEL WORKS, Wyoming, Pa.: N. G. Robertson.
YALE & TOWNE MFG. COMPANY, New York: A. W. Clark, W. R. Hill, A. T. Babcock.

Jobbers.

MOORE & HANDLEY HARDWARE COMPANY, Birmingham, Ala.: J. D. Moore.
WIMBERLY & THOMAS HARDWARE COMPANY, Birmingham, Ala.: F. R. Simpson.
SPEER HARDWARE COMPANY, Fort Smith, Ark.: C. E. Speer, F. B. Dunlop.
FONES BROS. HARDWARE COMPANY, Little Rock, Ark.: Jas. J. Mandlebaum, J. Van Dokkum.
WEBBER-AYERS HARDWARE COMPANY, Fort Smith, Ark.: W. W. Webber.
DUNHAM, CARRIGAN & HAYDEN COMPANY, San Francisco, Cal.: Brace Hayden.
PACIFIC HARDWARE & STEEL COMPANY, San Francisco, Cal.: A. L. Scott, H. L. Arnold.
GEO. TRITCH HARDWARE COMPANY, Denver, Colo.: Geo. Tritsch, E. G. Konshern.
KING HARDWARE COMPANY, Atlanta, Ga.: Geo. E. King.
DINKINS-DAVIDSON HARDWARE COMPANY, Atlanta, Ga.: S. C. Dinkins.
BECK & GREGG HARDWARE COMPANY, Atlanta, Ga.: W. A. Parker.
ANDERSON HARDWARE COMPANY, Atlanta, Ga.: Harvey L. Anderson.
J. D. WEED & Co., Savannah, Ga.: W. D. Krenson.
CLARK, QUIEN & MORSE, Peoria, Ill.: Chas. D. Clark.
ISAAC WALKER HARDWARE COMPANY, Peoria, Ill.: J. T. Nellson.
TENK HARDWARE COMPANY, Quincy, Ill.: R. Tenk.
VAN CAMP HARDWARE & IRON COMPANY, Indianapolis, Ind.: Cortlandt Van Camp, Samuel G. Van Camp.
BOETTICHER, KELLOGG & Co., Evansville, Ind.: Oscar Boetticher.
KNAPP & SPENCER COMPANY, Sioux City, Iowa: C. A. Knapp.
SICKLES, PRESTON & NUTTING COMPANY, Davenport, Iowa: Col. J. R. Nutting, Theo. Newhaus.
CUTLER HARDWARE COMPANY, Waterloo, Iowa: F. E. Cutler.
LUTHE HARDWARE COMPANY, Des Moines, Iowa: F. H. Luthe.
HUBER & KALBACH COMPANY, Oskaloosa, Iowa: J. S. Hayes.
BROWN-HUBLEY HARDWARE COMPANY, Des Moines, Iowa: W. S. Brown.
W. A. L. THOMPSON HARDWARE COMPANY, Topeka, Kan.: J. G. Bauer.
A. J. HARWI HARDWARE COMPANY, Atchison, Kan.: W. H. Harwi.
BLISH, MIZE & SILLIMAN HARDWARE COMPANY, Atchison, Kan.: J. B. Silliman.
FRANK COLLADAY HARDWARE COMPANY, Hutchinson, Kan.: Frank Colladay, T. F. Claffey.
LEE HARDWARE COMPANY, Salina, Kan.: H. D. Lee, Charles L. Schwartz.
OWENSBORO HARDWARE & IRON COMPANY, Owensboro, Ky.: Edward W. Leete.
STAUFFER, ESHLEMAN & Co., New Orleans, La.: Col. B. F. Eshleman, S. St. J. Eshleman.
EMERY-WATERHOUSE COMPANY, Portland, Maine: William Chamberlain.
N. H. BRAGG & SONS, Bangor, Maine: F. E. Bragg.
DUKE, PETERSON HARDWARE COMPANY, Baltimore, Md.: J. W. Peterson.
W. C. NIMMO COMPANY, Baltimore, Md.: W. C. Nimmo.
BIGELOW & DOWSE COMPANY, Boston, Mass.: Samuel A. Bigelow.
BALDWIN & ROBBINS COMPANY, Boston, Mass.: A. H. Decatur.
E. P. SANDERSON COMPANY, Boston, Mass.: E. P. Sanderson.
STANDART BROTHERS, Detroit, Mich.: Geo. G. Bogue.
MORLEY BROTHERS, Saginaw, Mich.: Edward W. Morley, Geo. W. Morley, P. F. H. Morley.
FOSTER, STEVENS & Co., Grand Rapids, Mich.: Chas. C. Philbrick.
CLARK-RUTKA-WEAVER COMPANY, Grand Rapids, Mich.: C. A. Benjamin.
MARSHALL-WELLS HARDWARE COMPANY, Duluth, Minn.: H. C. Marshall.
KELLEY-HOW-THOMSON COMPANY, Duluth, Minn.: Geo. W. Welles.
HACKETT, WALTHER & GATES HARDWARE COMPANY, St. Paul, Minn.: T. G. Walther.
FARWELL, OZMUN, KIRK & Co., St. Paul, Minn.: R. A. Kirk, Frank B. Platt, Everett B. Kirk.
WYETH HARDWARE & MFG. COMPANY, St. Joseph, Mo.: J. A. Warner.
NORVELL-SHAIPLEIGH HARDWARE COMPANY, St. Louis, Mo.: W. G. Yantis, R. W. Shapleigh.
GELLER, WARD & HASNER HARDWARE COMPANY, St. Louis, Mo.: Ira W. Love.
MCGREGOR-NOE HARDWARE COMPANY, Springfield, Mo.: D. M. Noe, Arch McGregor.
RICHARDS & CONOVER HARDWARE COMPANY, Kansas City, Mo.: W. B. Richards, J. E. O'Neill.
TOWNLEY METAL & HARDWARE COMPANY, Kansas City, Mo.: Geo. E. Garland.
WRIGHT & WILHELMY COMPANY, Omaha, Neb.: W. S. Wright.
LEE-GLASS-ANDRESSEN HARDWARE COMPANY, Omaha, Neb.: H. J. Lee, W. M. Glass.
HENKLE & JOYCE HARDWARE COMPANY, Lincoln, Neb.: R. M. Joyce.
ALBANY HARDWARE & IRON COMPANY, Albany, N. Y.: Chas. H. Turner.
WEED & Co., Buffalo, N. Y.: Hobart Weed, L. C. Davenport.
BEALS & Co., Buffalo, N. Y.: Chas. P. Rogers.
BARKER, ROSE & CLINTON COMPANY, Elmira, N. Y.: Capt. Frederick Barker.
IRVING D. BOOTH, Elmira, N. Y.
SICKELS & NUTTING COMPANY, New York: J. R. Loder.
STEINFELT BROS., New York: I. Kornfeld.
MATHEWS & BOUCHER, Rochester, N. Y.: James H. Boucher.
WEAVER, PALMER & RICHMOND, Rochester, N. Y.: Griff D. Palmer.
BURHANS & BLACK COMPANY, Syracuse, N. Y.: J. W. Black.
TREMAM, KING & Co., Ithaca, N. Y.: F. L. Hawes.
MCINTOSH HARDWARE CORPORATION, Cleveland, Ohio: Geo. T. McIntosh, J. S. Harris.
GEO. WORTHINGTON COMPANY, Cleveland, Ohio: W. D. Taylor, C. A. Jewett.
SMITH BROS. HARDWARE COMPANY, Columbus, Ohio: Thos. F. Smith.
CANTON HARDWARE COMPANY, Canton, Ohio: J. B. Brothers, C. A. Barnett.
BOSTWICK-BRAUN COMPANY, Toledo, Ohio: El. H. Refior, F. Lohmann.
OKLAHOMA CITY HARDWARE COMPANY, Oklahoma City, Okla.: S. E. Clarkson.
SUPPLEE HARDWARE COMPANY, Philadelphia: William W. Supplee, James S. Bonbright.
BIDDLE HARDWARE COMPANY, Philadelphia: David H. Reddle.
MERCHANT & EVANS COMPANY, Philadelphia: J. A. McKee.
E. K. TRYON, JR., COMPANY, Philadelphia: E. G. Chandlee.
LOGAN-GREGG HARDWARE COMPANY, Pittsburgh: P. L. Logan, Robt. M. Repp.
JAMES C. LINDSAY HARDWARE COMPANY, Pittsburgh: A. J. Bihler.
BELCHER & LOOMIS HARDWARE COMPANY, Providence, R. I.: W. B. Ayer.
BENEDICT, WARREN & DAVIDSON COMPANY, Memphis: J. D. Warren, N. Benedict, M. M. Cross, R. L. Davidson, J. T. Ambrose, L. J. Warren, E. Y. Kelly, P. M. Warren.
ORGILL BROS. & Co., Memphis: Frederick Orgill, Joseph Orgill, William Orgill, W. I. Moody, John S. Speed, Frederick Orgill, Jr.
BARNES & MILLER HARDWARE COMPANY, Memphis: H. R. Miller, W. E. Barnes, W. F. Stephenson.
PIDGEON-THOMAS IRON COMPANY, Memphis: P. Pidgeon, W. G. Thomas, J. B. Hutchinson.
GRAY-DUDLEY HARDWARE COMPANY, Nashville, Tenn.: R. M. Dudley, J. M. Gray, Jr., W. C. Pollard.
HOUSE-HASSON HARDWARE COMPANY, Knoxville, Tenn.: Samuel C. House.
C. M. MCCLUNG & Co., Knoxville, Tenn.: Bruce Keener, Bruce Keener, Jr.
J. H. FALL & Co., Nashville, Tenn.: J. H. Fall, J. H. Fall, Jr.
H. G. LIPSCOMB & Co., Nashville, Tenn.: H. G. Lipscomb.
KEITH-SIMMONS COMPANY, Nashville, Tenn.: W. Keith.
F. W. HEITMANN COMPANY, Houston, Texas: F. A. Heitmann.
MORROW-THOMAS HARDWARE COMPANY, Amarillo, Texas: James Walsh.
ROBERTS, SANFORD & TAYLOR, Sherman, Texas: W. L. Sanford, Zed Sanford.
NASH HARDWARE COMPANY, Fort Worth, Texas: A. D. Hodgson, W. R. Duffey.
PENICK-HUGHES COMPANY, Stamford, Texas: R. L. Penick.
SAN ANTONIO HARDWARE COMPANY, San Antonio, Texas: S. Jeffers.
W. S. DONNAN HARDWARE COMPANY, Richmond, Va.: John Donnan.
RICHMOND HARDWARE COMPANY, Richmond, Va.: W. D. Stuart.
WATKINS-COTTRELL COMPANY, Richmond, Va.: Charles H. Watkins.
WESTERN HARDWARE & METAL COMPANY, Seattle, Wash.: George Boole.
WHEELING CORRUGATING COMPANY, Wheeling, W. Va.: J. K. Boyd, H. J. Morgan, A. W. Crottsly, Andrew Glass.
WM. FRANKFURTH HARDWARE COMPANY, Milwaukee, Wis.: L. Maschauer.

Other Visitors.

A. T. STEBRINS, Rochester, Minn.
M. L. COREY, Argos, Ind.
W. P. BOGARDUS, Mt. Vernon, Ohio.
E. M. BUSH, Evansville, Ind.
S. R. MILES, Mason City, Iowa.
A. H. ABRE, New Britain, Conn.
S. R. DROESCHER, New York.
GEO. J. ADAMS, Chicago.
A. T. ANDERSON, Cleveland, Ohio.
C. M. AVERY, Chicago.
B. A. FRANKLIN, Boston, Mass.
W. P. SMITH, Mead & Smith, Louisville, Ky.
GEO. REITER, Mutual Trading Company, New York.
CHAS. H. WIER, Wier & Wilson, Baltimore, Md.
JAMES B. SURPLESS, JR., Surpluss, Dunn & Co., New York.
OLIVER B. SURPLESS, Surpluss, Dunn & Co., New York.
W. H. BOWERS, Surpluss, Dunn & Co., New York.
ALFRED C. GREENING, R. K. Carter & Co., New York.
S. H. GROSER, R. K. Carter & Co., New York.
THOMAS E. OLIVER, Oliver Bros. Purchasing Company, New York.
H. H. BEERS, Beers & Mitchell, Richmond, Va.
CLEMENT M. BIDDLE, Biddle Purchasing Company, New York.
R. L. BURCH, Southern Hardware and Stove Dealer, Nashville, Tenn.
C. W. WEAVER, Southern Hardware and Stove Dealer, Nashville, Tenn.
HAROLD S. BUTTENHEIM, Hardware, New York.
E. R. COOLEGE, Southern Lumberman, Nashville, Tenn.

HARTWELL STAFFORD, *Southern Lumberman*, Nashville, Tenn.
 H. T. HUNTER, *Hardware and Metal*, Toronto, Can.
 JAMES H. KENNEDY, *Hardware Dealers' Magazine*, New York.
 DANIEL STERN, the *American Artisan*, Chicago.
 W. K. PRATT, the *American Artisan*, Chicago.
 HARRY WISE, the *Tradesmen*, Chattanooga, Tenn.
 J. W. PENTZ, *Hardware Review*, New York.
 R. R. WILLIAMS, *The Iron Age*, New York.
 A. H. CHAMBERLAIN, *The Iron Age*, New York.

The Cary Steel Mat.

The Cary Mfg. Company, 19-21 Roosevelt street, New York, is making the Cary steel mat, two views of which are presented herewith. A prime result of this construction is that a scraping surface always exists in every direction. Another marked feature is the noncorroding, rustless character of the galvanizing which differs from

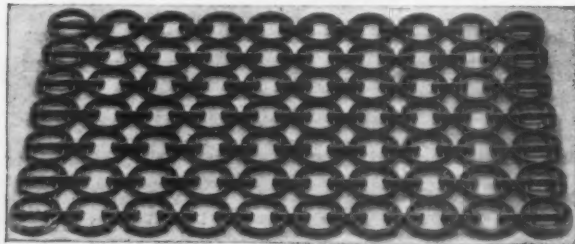


Fig. 1.—Cary Cold Rolled Galvanized Steel Mat.

the better known methods of such finish, accomplished before assembling the parts and which leaves all surfaces smooth. Mats so manufactured have a flexibility that greatly increases their life, enables them to adjust themselves to possible inequalities and permits of compact rolling for shipment or storage. The rustless finish prevents any discoloration of cement, tiled, marble or kindred flooring. The mat is made of high grade cold rolled steel No. 17 gauge. The round corners and the circular, arch-like outlines of the units on every edge or selvedge, while ornamental in appearance, greatly increase the strength and produce a glancing effect should the foot strike the edge first. The unit character of the mat makes it

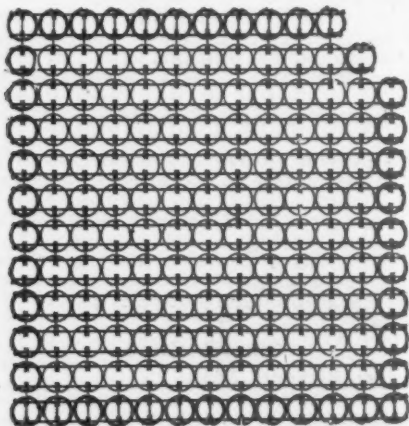


Fig. 2.—Quarter Section of Elevator Mat.

adaptable for introduction into irregular spaces to specification, such as entrances to buildings, private or public, elevators, &c., all parts of the fabric being equally strong and durable. The edges are reinforced by double thicknesses of metal. The units are $1\frac{1}{4}$ in. circles, $\frac{3}{8}$ in. high on edge and are formed in half sections, the rows of semicircles being joined by short flat links which work in between the half sections, with the wires running at right angles, clinched at each end. The mats are made regularly in six standard sizes, ranging approximately from 12 x 21 in. to 24 x 39 in. dimensions, and in rolls of 18, 24 and 36 in. widths, 50 to 100 ft. long, although from the nature of the units it is obvious that mats of any dimensions may be made. Fig. 2 is a reproduction of a quarter section of the same style of mat, so made to adapt it to elevator flooring for instant removal when cleaning.

The Jap Cabinet No. 255.

The kitchen cabinet represented in the accompanying illustration is the latest of a line of these goods manufactured by the Cincinnati Screen Company, Gest and Evans streets, Cincinnati, Ohio. The cabinet is constructed throughout of thoroughly seasoned, kiln dried solid oak. It is remarked that every inch of space has been put to the best possible service, and every accessory has been designed for utility and convenience. The aluminoid extension counter shelf is made from an alloy



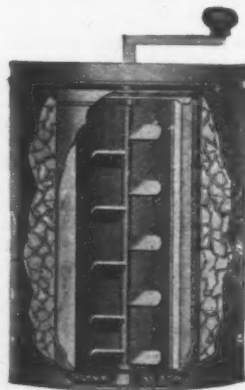
The Jap Cabinet No. 255.

which is acid proof and consequently does not corrode and tarnish. The sliding feature almost doubles the table space. The flour bin has a capacity of 60 lb., and is provided with a hopper top, removable sifter and glass flour gauge. The cabinet is furnished with a self-feeding sugar bin and a tilting meal bin. The two upper drawers have automatic sliding lids to prevent the entrance of dust or insects. Included in the equipment are six air tight spice canisters and one each for tea and coffee, removable cutting board, large pot cupboard, handy racks and a roomy china case. The entire cabinet, except the drawers, is inclosed with doors. The cabinet is 44 in. wide, 80 in. high, finished dull golden oak; crated weight, 250 lb.

Champion Ice Cream Freezer.

The Reid-Edelmuth Mfg. Company, 17-19 Ninth street, Brooklyn, N. Y., New York office 1 and 2 Hudson

street, has just brought out the Champion triple action ice cream freezer, here illustrated. It is made in four sizes, the capacities of which are 1, 2, 3 and 4 quarts respectively. The tub or outer receptacle, in which is put the cracked ice and salt freezing mixture, is of heavy galvanized iron, the cylinder of block tin retinned, and the dasher of malleable iron, tinned. The dasher has a wood scraper, which with each turn scrapes the freezing cream from inner side of cylinder and prevents its adherence to the inside walls. This freezer is designed for household use and is listed at \$1, \$1.25, \$1.50 and \$1.75 each, and crated three, two, two and one dozen respectively.



Champion Triple Action Ice Cream Freezer.

Steel Doubletrees and Singletrees.

The accompanying illustrations relate to a line of ribbed single and double trees and tubular singletrees and neck yokes offered by the Youngstown Pressed Steel Company, Youngstown, Ohio. The doubletree shown in Fig. 1, the cross section of which is illustrated in Fig. 2, is designed for plow sets and implement use or for lead teams. Doubletrees are made of the same pattern with steel clevis, instead of D center, for wagon and truck use. The center rub iron fits around both sides, with heavy bushing through the center. The body is well braced and riveted, and the point is made that it is unbreakable with any load that can be hauled by teams. Singletrees are also made in the U ribbed pattern. The tubular trussed pattern singletree is shown in Fig. 3 and an enlarged view of the construction is given in Fig. 4, with back pull hooks. It is also made with front pull hooks and neck yokes constructed the same as the singletree are also made. The body of the tube is made from one piece of high grade steel, tapering from center toward both ends, with a truss running the full length and all the way across the tube, with a T shaped head on one side, as shown in Fig. 4. The outer portion of the tube is formed round, with fitting joints or ends coming together and up against the T shaped head to secure a perfect joint. The U draw bolt is forged steel and

old brass and gun metal. The outer case is $2\frac{1}{8}$ in. square and 13-16 in. thick, on which patent has been applied



Ingersoll Universal Watch.

for. The watch is equally serviceable for home or office use as well as for tourists and travelers.

The Icy-Hot Bottle.

The Icy-Hot Bottle Company, 216 Post square, Cincinnati, Ohio, is manufacturing the bottle shown here-



Fig. 1.—U Ribbed Doubletree No. 164.

passes through the center of the truss in a manner to stiffen it at this point. It can be replaced in the same

with, for keeping hot liquid steaming hot or cold liquids cold for days without the use of fire, ice or chemicals.



Fig. 3.—Tubular Trussed Singletree No. 125.

way as on a wooden singletree when necessary. End hooks and ferrules are standard sizes and patterns. The

The device consists of two glass bottles, one within the other, made of one piece of glass, connected only at the neck, where the inner bottle is hermetically sealed to the outer. The space between the walls of the two



Fig. 2.—Cross Section of U Ribbed Doubletree.



Fig. 4.—Enlarged View of Tubular Trussed Singletree.

lightness and strength of these goods is especially referred to by the manufacturer.

Ingersoll Universal Watch.

Robert H. Ingersoll & Bro., 45-49 John street, New York, have just put on the market the Ingersoll Universal watch, here illustrated. It may be used on desk, table or mantel as a timepiece and paper weight, in the form shown, or by removing the two-piece telescoping sheet metal case it becomes the Yankee pattern 16-size watch, nickel case. It is both stem wind and stem set, and the styles of finish on outer case are nickel, polished copper,



The Icy-Hot Bottle.

bottles is exhausted of air, causing a vacuum and making it impossible for the heat from a hot liquid to be radiated or a cold liquid to absorb the heat of the surrounding

atmosphere. The glass bottle is encased in a nickel plated metal case. In use the bottle is filled with liquid and corked, where, it is stated, it will remain at approximately the temperature at which it was placed in the bottle for days, regardless of the temperature of the surrounding atmosphere. To prevent the cork being forced out by the steam of a hot liquid, a metal cap is screwed over the cork, which also serves for use as a drinking cup.

The New Leader Washing Machine.

The J. B. Foote Foundry Company, Fredericktown, Ohio, is making the washing machine shown in the accompanying illustrations.



Fig. 1.—The New Leader Washing Machine.

The stand and the spider—the base upon which the tub rests—are made of tubing provided with a device making it adjustable to various sized tubs. The auxiliary bench is also made of tubing, and is so arranged that it will swing around under the



Fig. 2.—Special Features of the New Leader Washer.

tub cut of the way when not in use, or it can be brought out to either side of the tub desired or directly behind the wringer. When not in use the bench can be folded and easily disposed of, thus occupying little space. The tub rotates upon 21 hardened steel balls to make it easy of operation. For the recoil action a torsion spring is provided, inclosed in the center column directly under the tub, firmly held in position but easily removed if desired. A fiber-tub is used which is said to last a lifetime,

as there are no hoops which might drop off allowing the staves to drop to pieces. The point is made that the tub is 2 in. higher than those ordinarily used for washing machines, and much lighter and more easily handled than a wooden tub. The method of securing the tub to the spider or base, it is shown, does not in any way injure it and it can be instantly removed. The wringer board is detachable from the tub and the washer can be used in any position without removing the wringer from the board. In Fig. 2 the interior of the tub and the disks are shown. The disks can be quickly removed from the tub for cleaning and the tub may be used for other purposes if desired. The rubbing disk adjusts itself to the quantity of clothes in the wringer, will wash one or a dozen pieces equally as well, and will not injure the most delicate fabrics. The lid is steam tight.

Granger Outfit for Orchard Spraying.

W. & B. Douglas, Middletown, Conn., and 83 John street, New York, have brought out the Granger outfit for spraying orchards, complete with gasoline engine and tools, as here reproduced. The apparatus, while especially suitable for installation in a vehicle to be transported to and through orchards, is also servicable for such work as suburban duty in raising water from, say, 15-ft. wells, to tanks located 150 to 160 ft. above ground. The two sizes have a capacity of 400 and 1000 gal. per hour, respectively. The specifications of the 2 x 3 in. size, unit style, vertical, outside packed triplex power pump, with brass plungers and brass glands, are as follows: The pump is geared to a 4 x 4½ in. horizontal four-cycle gasoline engine, especially designed for this service. There is a hit or miss governor and float feed



Granger Outfit for Orchard Spraying.

carburetor, and gasoline tank in base of engine of sufficient capacity to run 10 hr. The pumps may be operated by an air cooled engine, as illustrated, with fan, or a water cooled engine with open hopper, as ordered. The entire outfit is mounted on a substantial cast iron base, 23 x 33 in., together with protected box containing six dry batteries and spark coil, and tool box containing necessary wrenches and lubricating oil. The ratio of gearing is as 7 1-3 to 1, and the normal speed of engine is 500 rev. per min. The pump is fitted with a Y on discharge with two shut offs, as shown, with spring relief valve set at 60 lb. pressure, and pressure gauge and drip plugs. Two 10-ft. extension rods and Bordeaux or Vermorel nozzle are furnished with each spraying outfit. The 3 x 4 in. size outfit is very similar in construction to that here described with water cooled engine and all fittings, except that the discharge has four shut offs, and four extension rods with nozzles are furnished with each outfit. The engine can also be used to run a separator or for other moderate duty, for which purposes is furnished a 6 x 3 in. pulley, on which a belt can be run.

Fly Foot Belt Dressing.

The Charles A. Schieren Company, 37 Ferry street,
New York, tanner and manufacturer of high



Fig. 1.—Fly Foot Belt Dressing Package.



Fig. 2.—Fly Foot Trademark.

grade leather belting, has put on the market the Fly Foot belt dressing, the style of package and trademark being here reproduced. The origination of this formula was suggested by the necessity for a special belt preparation for a high duty belt supplying power from a racing engine in a rolling mill where the requirements are very exacting as the first bite of a billet suddenly increases many fold the strain on a belt. The purpose has been, by an expert chemist, to formulate a compound chemically correct that will stick until time to yield somewhat to save the belt; that will not injure the leather, and, as the trademark implies, hold the belt to pulley by suction, as a fly walks on a ceiling, at the same time permitting the belt to lift off without adhesion as the pulley revolves, not only in rolling mills, but wherever belts are used. Fly Foot is guaranteed by the company to exert no chemical effect on the leather other than to close the pores and prevent drying out, thus acting as a preservative and lengthening the life of the belt. It is put up regularly in 5-lb. tin cans with red decoration.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	gal	per
Linseed, Western, Raw.....	47	@48
State, Raw.....	47	@48
City, Raw.....	48	@49
Boiled, 1¢ per gal. advance on Raw.		
Raw, Calcutta, in bbls.....	70	@
Lard, Prime, Winter.....	73	@76
Extra No. 1.....	61	@62
No. 1.....	49	@50
Cotton-seed, Crude, F.O.B. mill, 30% @ 31		
Summer Yellow, prime.....	39	@39½
Summer, White.....	41½	@42
Yellow Winter.....	46	@47
Tallow, Acidless.....	58	@59
Menhaden, Brown, Strained.....	34	@35
Northern Crude.....	27	@30
Southern.....	23½	@
Light Strained.....	34	@35
Bleached Winter.....	36	@38
Ex. Bleached Winter.....	38	@39
Cocanut, Ceylon.....	6½	@6½
Cochin.....	7½	@7½
Cod, Domestic, Prime.....	38	@40
Newfoundland.....	40	@42
Red, Elaine.....	59	@62
Saponified.....	\$1.15	@\$1.25
Olive, Yellow.....	55	@58
Neatsfoot, Prime.....	55	@58
Palm, Lagos.....	6	@6½

Mineral Oils—

	gal	per
Black, 29 gravity, 25¢ cold test.....	13	@13½
29 gravity, 15 cold test.....	13½	@14
Summer.....	12½	@13
Cylinder, light filtered.....	20½	@21
Dark, filtered.....	18	@19
Paraffine, 903-907 sp. gravity.....	14½	@15
903 sp. gravity.....	13½	@14
983 sp. gravity.....	11	@11½
Red.....	13½	@14

Miscellaneous—

	ton	per
Barites:		
White, Foreign.....	\$18.50	@20.50
Amer. floated.....	17.00	@18.00
Off color.....	12.50	@15.00
Chalk, in bulk.....	3.00	@3.40

	gal	per
China Clay, Imported.....	11.50	@12.00
Cobalt, Oxide.....	1.50	@2.00
Whiting, Commercial.....	42	@52
Gilders.....	100 lb	35¢ @ .60
Ex. Gilders.....	100 lb	.60 @ .65

Putty, Commercial—

	per	gal
In bladders.....	\$1.70	@1.80
In bbls. or tubs.....	1.20	@1.45
In 1 lb to 5 lb cans.....	2.65	@2.95
In 12½ to 50 lb cans.....	1.50	@1.90

Spirits Turpentine—

	gal	per
In Oil bbls.....	42½	@43
In machine bbls.....	43	@43½

Glue—

	lb	per
Cabinet.....	12	@15
Common Bone.....	7½	@9
Extra White.....	18	@24
Fish, liquid, 50 gal. bbls., per gal- lon.....	60	@1.20
Foot Stock, White.....	12	@14
Foot Stock, Brown.....	9	@11
German Common Hide.....	10	@12
German Hide.....	12	@18
French.....	10	@40
Irish.....	13	@16
Low Grade.....	10	@12
Medium White.....	14	@17

Gum Shellac—

	per	lb
Bleached, Commercial.....	22	@23
Bone Dry.....	26	@27
Button.....	30	@40
Diamond I.....	40	@40
Fine, Orange.....	30	@35
A. C. Garnet.....	24	@25
G. A. L.....	20	@21
Kala Button.....	17	@18
D. C.....	35	@42
Octagon B.....	22	@23
T. N.....	22	@23
V. S. O.....	40	@40

Colors in Oil—

	per	lb
Black, Lampblack.....	12	@14
Blue, Chinese.....	36	@46
Blue, Prussian.....	32	@36

	per	lb
Blue, Ultramarine.....	13	@16
Brown, Vandyke.....	11	@14
Green, Chrome.....	12	@16
Green, Paris.....	24	@24
Sienna, Raw.....	12	@15
Sienna, Burnt.....	12	@15
Umber, Raw.....	11	@14
Umber, Burnt.....	11	@14

White and Red, Lead &c.—

Lead, English white, in Oil.....

Lead, American White:

Dry and in Oil, 100, 250 and

500 lb kegs.....

Dry and in Oil, 25 and 50

lb kegs.....

Dry and in Oil, 12½ lb kegs.....

In Oil, 25 lb tin pails.....

In Oil, 12½ lb tin pails.....

In Oil, 1, 2, 3 and 5 lb tin

cans, asst.....

Red Lead and Litharge:

In 100 lb kegs.....

In 25 and 50 lb kegs.....

In 12½ lb kegs.....

In lots of less than 500 lbs,

above prices of White and

Red Lead and Litharge

Lead, American. Terms: On lots of

500 lbs and over, 60 days, or 2% for

cash if paid in 15 days from date of

invoice.

Zinc, Dry—

American, dry.....

Red Seal (French process).....

Green Seal.....

German Red Seal (French

process).....

Green Seal.....

White Seal.....

French, Red Seal.....

Green Seal.....

Dry Colors—

Black, Carbon.....

Black Drop, American.....

	per	lb
Black Drop, English.....	5	@15
Black, Ivory.....	16	@20
Lamp, commercial.....	4	@6
Blue, Celestial.....	4	@6
Blue, Chinese.....	30	@32
Blue, Prussian.....	28	@30
Blue, Ultramarine.....	3½	@15
Brown, Spanish.....	1½	@1
Carmine, No. 40.....	\$3.10	@3.25
Green, Chrome, ordinary.....	3½	@5
Green, Chrome, pure.....	17	@25

Other, American.....

American Golden.....

French.....

Foreign Golden.....

Orange Mineral, English.....

French.....

German.....

American.....

Red, Indian, English.....

American.....

Red, Turkey, English.....

Red, Tuscan, English.....

Red, Venetian, Amer.....

English.....

Sienna, Italian, Burnt and

Powdered.....

Italian, Raw, Powdered.....

American, Raw.....

American Burnt and Pow'd.....

Talc, French.....

American.....

Terra Alba, French.....

English.....

American.....

American.....

Umber, Tkey, Bnt. & Pow.....

Turkey, Raw and Powdered.....

Burnt, American.....

Raw, American.....

Yellow, Chrome, Pure.....

Vermilion, American Lead.....

Quicksilver, bulk.....

Quicksilver, bars.....

English, Imported.....

Chinese.....

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades,
and a standard authority on all matters relating to those branches of industry.

ISSUED EVERY THURSDAY MORNING.

Subscription, postpaid, \$5 00 a year.

TWO DOLLAR EDITION, \$2.00 a year; DOLLAR EDITION, \$1.00 a year, to the United States, Mexico, Hawaii
Cuba, Philippine Islands. OTHER COUNTRIES: Weekly Edition \$7.50; Semi-monthly Edition, \$4.00; Monthly
Edition, \$2.50.

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New York (Main Office)	14-16 Park Place,	DAVID WILLIAMS CO., Pub.
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ENTERED AT THE POST OFFICE, NEW YORK, AS SECOND CLASS MATTER

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued annually, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Columbian and Domestic.....33½%
North's.....10%
Upson's Patent, ½ gro., \$29.90.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....10%
Ives' Stop Bead Screws and Washers.....10%
Taplin's Perfection.....10%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ½ doz. pairs, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Anvils—American—

Eagle Anvils.....10%
Hay-Budden, Wrought.....10%
Trenton.....10%

Imported—

Swedish Solid Steel Paragon, ½ doz. pairs, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Anvil, Vice and Drill—

Millers Falls Co., \$18.00.....15%
Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Livingston Nail Co.....10%

Augers and Bits—

Com. Double Spur.....75%
Jennings' Patn. Bright.....65%
Black Lip or Blued.....65%
Boring Mach. Augers.....70%
Car Bits, 12-in. twist.....40%
Ford's Auger and Car Bits.....40%
Ft. Washington Auger Co., Concord's.....35%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list.....25%
No. 30, R. Jennings' list.....50%
Russell Jennings'.....25%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Fugh's Black.....25%
Fugh's Jennings' Pattern.....35%
Snell's Auger Bits.....35%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist.....60%
Snell's King Auger Bits.....50%
Swan's.....65%
Swan's, Jennings' Pattern.....50%
Wright's Jennings' Bits.....50%

Bit Stock Drills—

See Drills, Twist.
Expansive Bits—
Clark's Pattern, No. 1, ½ doz., \$26;
No. 2, \$18.....60%
Ford's, Clark's Pattern.....60%
C. E. Jennings & Co., Steer's Pat. 25%
Lavigne Pat., small size, \$18.00;
size, \$26.00.....60%
Swan's.....60%

Gimlet Bits—

Common Dbl. Cut.....3.25
German Pattern, Nos. 1 to 10,
\$4.75; 11 to 13, \$5.75

Hollow Augers—

Bonney Pat., per doz. \$5.50 @ 6.00
Ames.....20%
Universal.....20%

Ship Augers and Bits—

Ship Augers.....40%
Ford's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....6%
Watrous'.....33%
Snell's.....48%

Cages, Bird—

Hendryx Brass: Series 3000, 5000,
1100, net list; 1200, 15%; 2000, 300,
900 30%
Hendryx Bronze: Series 700, 800 30%
Hendryx Enameled 35%

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong, per 100 lb.,
\$3.50 @ \$3.85

Sharp, 1 prong, per 100 lb.,
\$4.00 @ \$4.35

Burke's, 1 pg. Blunt Toe, 3/4"; 2 pg.
Blunt Toe, 4/4"; 1 pg. Sharp Toe,
4/4"; 2 pg. Sharp, 4/4"; Blunt
Heel, 4/4"; Sharp Heel, 4/4";
Lutier, Blunt, 4/4"; Sharp, 4/4";
Perkins', Blunt, 3/4"; 3.65¢; Sharp,
4.15¢

Can Openers—

See Openers, Can.

Caps, Percussion—

Elcy's E. B. 52 @ 55¢

G. D. per M. 40 @ 45¢

F. L. per M. 40 @ 45¢

G. E. per M. 40 @ 45¢

Musket per M. 65 @ 65¢

Primers—

Berdan Primers, \$2 per M. 20¢

Primer Shells and Bullets, 15¢ @ 10¢

All other primers per M. \$1.52 @ 1.60

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

Blank Cartridges:

32 C. F., \$5.50 10¢ @ 5¢

38 C. F., \$7.00 10¢ @ 5¢

22 cal. Rim, \$1.50 10¢ @ 5¢

32 cal. Rim, \$2.75 10¢ @ 5¢

B. B. Caps, Con. Ball, Sigd. \$1.90

B. B. Caps, Round Ball, \$1.19

Central Fire, \$2.50 25¢

Target and Sporting Rifle, 15¢ @ 5¢

Primed Shells and Bullets, 15¢ @ 10¢

Rim Fire, Sporting, \$2.50 50¢

Rim Fire, Military, \$2.50 15¢ @ 5¢

Casters—

Red 65¢ @ 10¢ @ 70%

Plate 60¢ @ 60¢ @ 45%

Philadelphia 70¢ @ 10¢ @ 75%

Acme Ball Bearing, \$2.50 35¢

Gem (Roller Bearing), \$7.00 @ 10¢ @ 45%

Steel Gem (Roller Bearing), \$4.50 45¢

Standard Ball Bearing, \$2.50 45¢

Xale (Double Wheel) low list, 40¢ @ 10¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Proof Coil—

American Coil, Straight Link:

3-16 1/4 5-16 3/8 1/2 5/8 3/4 1 1 1/4 1 1/2 1 3/4 2 2 1/2 3 3 1/2 4 4 1/2 5 5 1/2 6 6 1/2 7 7 1/2 8 8 1/2 9 9 1/2 10 10 1/2 11 11 1/2 12 12 1/2 13 13 1/2 14 14 1/2 15 15 1/2 16 16 1/2 17 17 1/2 18 18 1/2 19 19 1/2 20 20 1/2 21 21 1/2 22 22 1/2 23 23 1/2 24 24 1/2 25 25 1/2 26 26 1/2 27 27 1/2 28 28 1/2 29 29 1/2 30 30 1/2 31 31 1/2 32 32 1/2 33 33 1/2 34 34 1/2 35 35 1/2 36 36 1/2 37 37 1/2 38 38 1/2 39 39 1/2 40 40 1/2 41 41 1/2 42 42 1/2 43 43 1/2 44 44 1/2 45 45 1/2 46 46 1/2 47 47 1/2 48 48 1/2 49 49 1/2 50 50 1/2 51 51 1/2 52 52 1/2 53 53 1/2 54 54 1/2 55 55 1/2 56 56 1/2 57 57 1/2 58 58 1/2 59 59 1/2 60 60 1/2 61 61 1/2 62 62 1/2 63 63 1/2 64 64 1/2 65 65 1/2 66 66 1/2 67 67 1/2 68 68 1/2 69 69 1/2 70 70 1/2 71 71 1/2 72 72 1/2 73 73 1/2 74 74 1/2 75 75 1/2 76 76 1/2 77 77 1/2 78 78 1/2 79 79 1/2 80 80 1/2 81 81 1/2 82 82 1/2 83 83 1/2 84 84 1/2 85 85 1/2 86 86 1/2 87 87 1/2 88 88 1/2 89 89 1/2 90 90 1/2 91 91 1/2 92 92 1/2 93 93 1/2 94 94 1/2 95 95 1/2 96 96 1/2 97 97 1/2 98 98 1/2 99 99 1/2 100 100 1/2 101 101 1/2 102 102 1/2 103 103 1/2 104 104 1/2 105 105 1/2 106 106 1/2 107 107 1/2 108 108 1/2 109 109 1/2 110 110 1/2 111 111 1/2 112 112 1/2 113 113 1/2 114 114 1/2 115 115 1/2 116 116 1/2 117 117 1/2 118 118 1/2 119 119 1/2 120 120 1/2 121 121 1/2 122 122 1/2 123 123 1/2 124 124 1/2 125 125 1/2 126 126 1/2 127 127 1/2 128 128 1/2 129 129 1/2 130 130 1/2 131 131 1/2 132 132 1/2 133 133 1/2 134 134 1/2 135 135 1/2 136 136 1/2 137 137 1/2 138 138 1/2 139 139 1/2 140 140 1/2 141 141 1/2 142 142 1/2 143 143 1/2 144 144 1/2 145 145 1/2 146 146 1/2 147 147 1/2 148 148 1/2 149 149 1/2 150 150 1/2 151 151 1/2 152 152 1/2 153 153 1/2 154 154 1/2 155 155 1/2 156 156 1/2 157 157 1/2 158 158 1/2 159 159 1/2 160 160 1/2 161 161 1/2 162 162 1/2 163 163 1/2 164 164 1/2 165 165 1/2 166 166 1/2 167 167 1/2 168 168 1/2 169 169 1/2 170 170 1/2 171 171 1/2 172 172 1/2 173 173 1/2 174 174 1/2 175 175 1/2 176 176 1/2 177 177 1/2 178 178 1/2 179 179 1/2 180 180 1/2 181 181 1/2 182 182 1/2 183 183 1/2 184 184 1/2 185 185 1/2 186 186 1/2 187 187 1/2 188 188 1/2 189 189 1/2 190 190 1/2 191 191 1/2 192 192 1/2 193 193 1/2 194 194 1/2 195 195 1/2 196 196 1/2 197 197 1/2 198 198 1/2 199 199 1/2 200 200 1/2 201 201 1/2 202 202 1/2 203 203 1/2 204 204 1/2 205 205 1/2 206 206 1/2 207 207 1/2 208 208 1/2 209 209 1/2 210 210 1/2 211 211 1/2 212 212 1/2 213 213 1/2 214 214 1/2 215 215 1/2 216 216 1/2 217 217 1/2 218 218 1/2 219 219 1/2 220 220 1/2 221 221 1/2 222 222 1/2 223 223 1/2 224 224 1/2 225 225 1/2 226 226 1/2 227 227 1/2 228 228 1/2 229 229 1/2 230 230 1/2 231 231 1/2 232 232 1/2 233 233 1/2 234 234 1/2 235 235 1/2 236 236 1/2 237 237 1/2 238 238 1/2 239 239 1/2 240 240 1/2 241 241 1/2 242 242 1/2 243 243 1/2 244 244 1/2 245 245 1/2 246 246 1/2 247 247 1/2 248 248 1/2 249 249 1/2 250 250 1/2 251 251 1/2 252 252 1/2 253 253 1/2 254 254 1/2 255 255 1/2 256 256 1/2 257 257 1/2 258 258 1/2 259 259 1/2 260 260 1/2 261 261 1/2 262 262 1/2 263 263 1/2 264 264 1/2 265 265 1/2 266 266 1/2 267 267 1/2 268 268 1/2 269 269 1/2 270 270 1/2 271 271 1/2 272 272 1/2 273 273 1/2 274 274 1/2 275 275 1/2 276 276 1/2 277 277 1/2 278 278 1/2 279 279 1/2 280 280 1/2 281 281 1/2 282 282 1/2 283 283 1/2 284 284 1/2 285 285 1/2 286 286 1/2 287 287 1/2 288 288 1/2 289 289 1/2 290 290 1/2 291 291 1/2 292 292 1/2 293 293 1/2 294 294 1/2 295 295 1/2 296 296 1/2 297 297 1/2 298 298 1/2 299 299 1/2 300 300 1/2 301 301 1/2 302 302 1/2 303 303 1/2 304 304 1/2 305 305 1/2 306 306 1/2 307 307 1/2 308 308 1/2 309 309 1/2 310 310 1/2 311 311 1/2 312 312 1/2 313 313 1/2 314 314 1/2 315 315 1/2 316 316 1/2 317 317 1/2 318 318 1/2 319 319 1/2 320 320 1/2 321 321 1/2 322 322 1/2 323 323 1/2 324 324 1/2 325 325 1/2 326 326 1/2 327 327 1/2 328 328 1/2 329 329 1/2 330 330 1/2 331 331 1/2 332 332 1/2 333 333 1/2 334 334 1/2 335 335 1/2 336 336 1/2 337 337 1/2 338 338 1/2 339 339 1/2 340 340 1/2 341 341 1/2 342 342 1/2 343 343 1/2 344 344 1/2 345 345 1/2 346 346 1/2 347 347 1/2 348 348 1/2 349 349 1/2 350 350 1/2 351 351 1/2 352 352 1/2 353 353 1/2 354 354 1/2 355 355 1/2 356 356 1/2 357 357 1/2 358 358 1/2 359 359 1/2 360 360 1/2 361 361 1/2 362 362 1/2 363 363 1/2 364 364 1/2 365 365 1/2 366 366 1/2 367 367 1/2 368 368 1/2 369 369 1/2 370 370 1/2 371 371 1/2 372 372 1/2 373 373 1/2 374 374 1/2 375 375 1/2 376 376 1/2 377 377 1/2 378 378 1/2 379 379 1/2 380 380 1/2 381 381 1/2 382 382 1/2 383 383 1/2 384 384 1/2 385 385 1/2 386 386 1/2 387 387 1/2 388 388 1/2 389 389 1/2 390 390 1/2 391 391 1/2 392 392 1/2 393 393 1/2 394 394 1/2 395 395 1/2 396 396 1/2 397 397 1/2 398 398 1/2 399 399 1/2 400 400 1/2 401 401 1/2 402 402 1/2 403 403 1/2 404 404 1/2 405 405 1/2 406 406 1/2 407 407 1/2 408 408 1/2 409 409 1/2 410 410 1/2 411 411 1/2 412 412 1/2 413 413 1/2 414 414 1/2 415 415 1/2 416 416 1/2 417 417 1/2 418 418 1/2 419 419 1/2 420 420 1/2 421 421 1/2 422 422 1/2 423 423 1/2 424 424 1/2 425 425 1/2 426 426 1/2 427 427 1/2 428 428 1/2 429 429 1/2 430 430 1/2 431 431 1/2 432 432 1/2 433 433 1/2 434 434 1/2 435 435 1/2 436 436 1/2 437 437 1/2 438 438 1/2 439 439 1/2 440 440 1/2 441 441 1/2 442 442 1/2 443 443 1/2 444 444 1/2 445 445 1/2 446 446 1/2 447 447 1/2 448 448 1/2 449 449 1/2 450 450 1/2 451 451 1/2 452 452 1/2 453 453 1/2 454 454 1/2 455 455 1/2 456 456 1/2 457 457 1/2 458 458 1/2 459 459 1/2 460 460 1/2 461 461 1/2 462 462 1/2 463 463 1/2 464 464 1/2 465 465 1/2 466 466 1/2 467 467 1/2 468 468 1/2 469 469 1/2 470 470 1/2 471 471 1/2 472 472 1/2 473 473 1/2 474 474 1/2 475 475 1/2 476 476 1/2 477 477 1/2 478 478 1/2 479 479 1/2 480 480 1/2 481 481 1/2 482 482 1/2 483 483 1/2 484 484 1/2 485 485 1/2 486 486 1/2 487 487 1/2 488 488 1/2 489 489 1/2 490 490 1/2 491 491 1/2 492 492 1/2 493 493 1/2 494 494 1/2 495 495 1/2 496 496 1/2 497 497 1/2 498 498 1/2 499 499 1/2 500 500 1/2 501 501 1/2 502 502 1/2 503 503 1/2 504 504 1/2 505 505 1/2 506 506 1/2 507 507 1/2 508 508 1/2 509 509 1/2 510 510 1/2 511 511 1/2 512 512 1/2 513 513 1/2 514 514 1/2 515 515 1/2 516 516 1/2 517 517 1/2 518 518 1/2 519 519 1/2 520 520 1/2 521 521 1/2 522 522 1/2 523 523 1/2 524 524 1/2 525 525 1/2 526 526 1/2 527 527 1/2 528 528 1/2 529 529 1/2 530 530 1/2 531 531 1/2 532 532 1/2 533 533 1/2 534 534 1/2 535 535 1/2 536 536 1/2 537 537 1/2 538 538 1/2 539 539 1/2 540 540 1/2 541 541 1/2 542 542 1/2 543 543 1/2 544 544 1/2 545 545 1/2 546 546 1/2 547 547 1/2 548 548 1/2 549 549 1/2 550 550 1/2 551 551 1/2 552 552 1/2 553 553 1/2 554 554 1/2 555 555 1/2 556 556 1/2 557 557 1/2 558 558 1/2 559 559 1/2 560 560 1/2 561 561 1/2 562 562 1/2 563 563 1/2 564 564 1/2 565 565 1/2 566 566 1/2 567 567 1/2 568 568 1/2 569 569 1/2 570 570 1/2 571 571 1/2 572 572 1/2 573 573 1/2 574 574 1/2 575 575 1/2 576 576 1/2 577 577 1/2 578 578 1/2 579 579 1/2 580 580 1/2 581 581 1/2 582 582 1/2 583 583 1/2 584 584 1/2 585 585 1/2 586 586 1/2 587 587 1/2 588 588 1/2 589 589 1/2 590 590 1/2 591 591 1/2 592 592 1/2 593 593 1/2 594 594 1/2 595 595 1/2 596 596 1/2 597 597 1/2 598 598 1/2 599 599 1/2 600 600 1/2 601 601 1/2 602 602 1/2 603 603 1/2 604 604 1/2 605 605 1/2 606 606 1/2 607 607 1/2 608 608 1/2 609 609 1/2 610 610 1/2 611 611 1/2 612 612 1/2 613 613 1/2 614 614 1/2 615 615 1/2 616 616 1/2 617 617 1/2 618 618 1/2 619 619 1/2 620 620 1/2 621 621 1/2 622 622 1/2 623 623 1/2 624 624 1/2 625 625 1/2 626 626 1/2 627 627 1/2 628 628 1/2 629 629 1/2 630 630 1/2 631 631 1/2 632 632 1/2 633 633 1/2 634 634 1/2 635 635 1/2 636 636 1/2 637 637 1/2 638 638 1/2 639 639 1/2 640 640 1/2 641 641 1/2 642 642 1/2 643 643 1/2 644 644 1/2 645 645 1/2 646 646 1/2 647 647 1/2 648 648 1/2 649 649 1/2 650 650 1/2 651 651 1/2 652 652 1/2 653 653 1/2 654 654 1/2 655 655 1/2 656 656 1/2 657 657 1/2 658 658 1/2 659 659 1/2 660 660 1/2 661 661 1/2 662 662 1/2 663 663 1/2 664 664 1/2 665 665 1/2 666 666 1/2 667 667 1/2 668 668 1/2 669 669 1/2 670 670 1/2 671 671 1/2 672 672 1/2 673 673 1/2 674 674 1/2 675 675 1/2 676 676 1/2 677 677 1/2 678 678 1/2 679 679 1/2 680 680 1/2 681 681 1/2 682 682 1/2 683 683 1/2 684 684 1/2 685 685 1/2 686 686 1/2 687 687 1/2 688 688 1/2 689 689 1/2 690 690 1/2 691 691 1/2 692 692 1/2 693 693 1/2 694 694 1/2 695 695 1/2 696 696 1/2 697 697 1/2 698 698 1/2 699 699 1/2 700 700 1/2 701 701 1/2 702 702 1/2 703 703 1/2 704 704 1/2 705 705 1/2 706 706 1/2 707 707 1/2 708 708 1/2 709 709 1/2 710 710 1/2 711 711 1/2 712 712 1/2 713 713 1/2 714 714 1/2 715 715 1/2 716 716 1/2 717 717 1/2 718 718 1/2 719 719 1/2 720 720 1/2 721 721 1/2 722 722 1/2 723 723 1/2 724 724 1/2 725 725 1/2 726 726 1/2 727 727 1/2 728 728 1/2 729 729 1/2 730 730 1/2 731 731 1/2 732 732 1/2 733 733 1/2 734 734 1/2 735 735 1/2 736 736 1/2 737 737 1/2 738 738 1/2 739 739 1/2 740 740 1/2 741 741 1/2 742 742 1/2 743 743 1/2 744 744 1/2 745 745 1/2 746 746 1/2 747 747 1/2 748 748 1/2 749 749 1/2 750 750 1/2 751 751 1/2 752 752 1/2 753 753 1/2 754 754 1/2 755 755 1/2 756 756 1/2 757 757 1/2 758 758 1/2 759 759 1/2 760 760 1/2 761 761 1/2 762 762 1/2 763 763 1/2 764 764 1/2 765 765 1/2 766 766 1/2 767 767 1/2 768 768 1/2 769 769 1/2 770 770 1/2 771 771 1/2 772 772 1/2 773 773 1/2 774 774 1/2 775 775 1/2 776 776 1/2 777 777 1/2 778 778 1/2 779 779 1/2 780 780 1/2 781 781 1/2 782 782 1/2 783 783 1/2 784 784 1/2 785 785 1/2 786 786 1/2 787 787 1/2 788 788 1/2 789 789 1/2 790 790 1/2 791 791 1/2 792 792 1/2 793 793 1/2 794 794 1/2 795 795 1/2 796 796 1/2 797 797 1/2 798 798 1/2 799 799 1/2 800 800 1/2 801 801 1/2 802 802 1/2 803 803 1/2 804 804 1/2 805 805 1/2 806 806 1/2 807 807 1/2 808 808 1/2 809 809 1/2 810 810 1/2 811 811 1/2 812 812 1/2 813 813 1/2 814 814 1/2 815 815 1/2 816 816 1/2 817 817 1/2 818 818 1/2 819 819 1/2 820 820 1/2 821 821 1/2 822 822 1/2 823 823 1/2 824 824 1/2 825 825 1/2 826 826 1/2 827 827 1/2 828 828 1/2 829 829 1/2 830

10-lb. cans, 10 in case, 6 1/2¢ 7¢ = 6¢
 10-lb. cans, less than 10, 10¢ 10¢ = 8¢
 Less quantity, 10¢ 10¢ = 8¢
 NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—

Ford's Auger Bit Extensions, 40¢ & 5%

Ext. actors, erson Juice—

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's Jap'd and Galv., 50 & 5%
 5%: Bronze and Plated, 50%
 Walling's, 50%
 Upon's Patent, 40%

Cord and Weight—

Ives, 100 gro., \$1.08, 10%
 Titan, 100 gro., \$0.66, 10%
 Corrugated—
 Acme Corrugated Fasteners, 10%

Faucets—

Cork Lined, 50¢ & 10¢ @ 60%
 Metallic Key, Leather Lined, 60¢ & 10¢ @ 70%
 Red Cedar, 40¢ & 10¢ @ 65%
 Petroleum, 70¢ & 10¢ @ 75%
 B. & L. Co.:
 Metal Key, 60¢ & 10%
 Star, 50%
 West Lock, 40%
 John Sommer's Peerless Tin Key, 50%
 John Sommer's Boss Tin Key, 50%
 John Sommer's Victor Mtl. Key, 50% & 10%
 John Sommer's Duplex Metal Key, 60%
 John Sommer's Diamond Lock, 40%
 John Sommer's I.X.L. Cork Lined, 50%
 John Sommer's Reliable Cork Lined, 50%

John Sommer's Chicago Cork Lined, 60%
 John Sommer's O. K. Cork Lined, 50%
 John Sommer's No Brand, Cedar, 50%
 John Sommer's Perfection, Cedar, 40%
 Self Measuring:
 Enterprise, Self Measuring and Pump, 100 doz., \$36.00, 40% & 10%
 Lane's, 100 doz., \$36.00, 40% & 10%
 National Measuring, 100 doz., \$36.00, 40% & 10%

Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List Nov. 1, 1899.

Best Brands, 70¢ & 10¢ @ 75% & 10%
 Standard Brands, 75¢ & 10¢ @ 80%
 Lower Grade, 75¢ & 10¢ @ 80% & 10%
 Gold Medal, 70%
 McCaffrey's American Standard, 60% & 10% & 10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97, 33 1/2¢ @ 40%
 Fixtures, Fire Door—

Richards Mfg. Co.,
 Universal, No. 103; Special, No. 104
 Fusible Links, No. 96, 50%
 Expansion Bolts, No. 107, 60% & 10%

Grindstone—

Net Prices:
 Inch, 15 17 19 21
 Per doz., \$3.60 3.85 4.15 4.65
 Peck, Stow & Wilcox Co.:
 In., 15 17 19 21 24
 \$1.00 4.00 4.75 5.50 6.50, 30%
 Reading Hardware Co., 60%

Fodder Squeezers—

See Compressors.

Forks—

American Fork & Hoe Co.:
 Iowa Dig-Ezy Potato, 70¢ & 5%
 Hay, Regular, 3-time, 45¢ & 20¢ & 12%
 Hay, Regular, 4-time, 60¢ & 7% & 5%
 Champion, Hay, 60¢ & 12%
 Acme, Hay, 60¢ & 20%
 Manure, Regular, 4-time, 65¢ & 5%
 Manure, Regular, 5 and 6 time, 70%
 Champion, Manure, 65¢ & 5%
 Acme, 4-time, 60¢ & 10% & 5%
 Round Shoulder Header, 4-time, 65%
 Champion, Header, 65%
 Dakota, Header, 65%
 Kansas Header, 65%
 Wood, Barley, 35¢ & 5%
 Steel, Barley, 65%
 Columbia, Spading, 70¢ & 7 1/2% & 5%

Frames— Wood Saw—

White, 8' 9" Bar, per doz. 75¢ @ 80%
 Red, 8' 9" Bar, per doz. \$1.00 @ 1.25
 Red, Dbl. Bruce, per doz. \$1.40 @ 1.50

Freezers, Ice Cream—

Qt., 1 2 3 4 6
 Each, \$1.25 \$1.60 \$1.90 \$2.20 \$2.60

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Fuse—

Per 1000 Feet.
 Hemp, 2.75
 Cotton, 3.20
 Waterproof Rgl. Taped, 3.65
 Waterproof Pbl. Taped, 4.40
 Waterproof Tpl. Taped, 5.15

Gates, Molasses and Oil—

Stebbins' Pattern, 80¢ @ 80% & 5%

Gauges—

Marking, Mortise, &c., 50¢ @ 50% & 10%
 Chapin-Stephens Co.:
 Marking, Mortise, &c., 50¢ & 50% & 10%
 Diston's Marking, Mortise, &c., 67 1/2%
 Wire, Morse's, 25%
 Wire, P. S. & W. Co., 35%

Gimlets— Single Cut—

Numbered assortments, per gro.

Nail, Metal, No. 1, \$2.00; 2, \$2.30
 Spike, Metal No. 1, \$4.00; 2, \$4.30
 Nail, Wood Handled, No. 1, \$2.30; 2, \$2.60
 Spike, Wood Handled, No. 1, \$4.30; 2, \$4.60

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co., 65¢ @ 65% & 10%

Glue, Liquid Fish—

Bottles or Cans, with Brush, 25¢ @ 100%

Elwell's, 40%

Grease, Axle—

Common Grade, 100 gro., \$6.00 @ \$6.50

Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, 100 doz., 1 lb., \$1.20;
 2 lb., \$2.00
 Helmet Hard Oil, 25%

Griddles, Soapstone—

Pike Mfg. Co., 33% @ 33% & 10%

Grinders—

Pike Mfg. Co.:
 Hand and Foot Power, Pyko No. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power), 33%
 Mower Knife and Tool, \$5.00, 40% & 10%
 Royal Mfg. Co.:
 Alundum Grinding Machines, each, Nos. 01, \$1.75; 1A, \$2.50; 10, \$5.00
 Alundum Sickle Grinders, each, Nos. 20, \$5.00; 20A, \$6.00; 20B, \$6.50
 Combined, \$6.50, 30%
 Alundum Disc Grinders, each, \$2.50, 30%

Grindstones—

Pike Mfg. Co.:
 Improved Family Grindstones, 1/2 inch, 100 doz., \$2.00, 33%
 Richards Mfg. Co., Etl and Cycle, Ball Bearing, mounted, 40%

Grips, Nipple—

Perfect Nipple Grips, 40% & 10% & 2%

Halters and Ties—

Cow Ties, 65¢ @ 65% & 10%
 Bridgeport Chain Co.:
 Triumph Coil and Halters, 35¢ & 2% @ 40%
 Brown Coil and Halters, 45¢ @ 50% & 5%
 Brown Cow Ties, 50¢ & 50¢ @ 10% & 5%
 Brown Tie Outs, 70¢ & 10¢ @ 75% & 5%
 Covert Mfg. Co.:
 Web, 30¢ & 5%
 Jute Rope, 35%
 Sisal Rope, 20%
 Cotton Rope, 45%
 Hemp Rope, 45%
 Onaida Community:
 Am. Coil and Halters, 40¢ @ 40% & 5%
 Am. Cow Ties, 45¢ @ 50%
 Niagara Coil and Halters, 45¢ @ 50% & 5%
 Niagara Cow Ties, 45¢ & 50¢ @ 10% & 5%

Hammers—

Handled Hammers—
 Heller's Machinists', 55¢ & 10¢ @ 55% & 10% & 5%
 Heller's Farriers', 40¢ & 50¢ @ 40% & 5%
 Peck, Stow & Wilcox Co.:
 Crucible Steel, 40¢ & 10¢ @ 50%
 Farriers', 40¢ & 10¢ @ 50%
 Riveting, 40¢ & 10¢ @ 50%
 Machinists', 60¢ & 10%
 Blacksmiths', 50%
 Fayette R. Plumb:
 A. E. Nail, 40¢ & 2% @ 40% & 12%
 Eng. and B. S. Hand, 50¢ & 10¢ @ 50% & 5%
 Machinists' Hammers, 60¢ & 10% & 5%
 Rivet and Tinner's, 40¢ & 7 1/2¢ @ 40% & 12% & 5%
 Victor Magnetic Tack, 100 gro., \$7.75

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢ . 80¢ @ 10%
 3 to 5 lb., per lb., 40¢ . 80¢ @ 10% & 10%
 Over 5 lb., per lb., 30¢ . 80¢ @ 10% & 10%
 Over 5 lb., per lb., 30¢ . 80¢ @ 10% & 10%

Handles—

Agricultural Tool Handles
 Arc, Pick, &c., 60¢ @ 100% & 10% & 5%
 Hoe, Rake, &c., 40%
 Fork, Shovel, Spade, &c.:
 Long Handles, 40%
 D Handles, 40%

Cross-Cut Saw Handles—

Atkins, 40%
 Champion, 50%
 Diston's, 50%

Mechanics' Tool Handles—

Auger, assorted, 100 gro., \$3.00 @ \$3.50
 Brad Axl., 100 gro., \$1.65 @ \$1.75
 Chisel Handles, Ass'd, per gro.:
 Tanged Firmer, Apple, \$2.40 @ \$2.65; Hickory, \$2.15 @ \$2.40
 Socket Firming, Apple, \$1.75 @ \$1.95; Hickory, \$1.60 @ \$1.75
 Socket Framing, Hickory, \$1.60 @ \$1.75
 File, assorted, 100 gro., \$1.30 @ \$1.40
 Hammer, Hatchet, &c., 60¢ @ 100% & 10% & 5%
 Hand Sae, Varnished, doz., 80¢ & 5¢; Not Varnished, 65¢ @ 75¢
 Plane Handles:
 Jack, doz., 30¢; Fore, doz., 45¢
 Chapin-Stephens Co.:
 Carving Tool, 30¢ @ 30% & 10%
 Chisel, 60¢ @ 60% & 10%
 File and Axl., 60¢ @ 60% & 10%
 Saw and Plane, 30¢ @ 30% & 10%
 Screw Driver, 30¢ @ 30% & 10%
 Millers Falls Adj. and Ratchet Auger Handles, 15¢ @ 10%
 Nicholson Simplicity File Handle, 15¢ @ 10%
 J. L. Osgood:
 Indestructible File and Tool, 100 gro., No. 1, \$8.00; No. 2, \$8.50; No. 3, \$9.00; No. 4, \$9.50; No. 5, \$10.00, 100 gro. lots 10%

W. A. Zelnicker Supply Co.: Hammer, 10 doz., 12 in., \$2.00; 14 in., \$2.00; 16 in., \$2.30; 18 in., \$2.50; 20 in., \$2.70; 22 in., \$3.00; 24 in., \$3.30; 26 in., \$3.50; 30 in., \$3.80. Sledge, 10 doz., oval, 30 in., \$8.00; octagon, 30 in., \$3.80; oval, 36 in., \$4.00; octagon, 36 in., \$4.00. Axe, 10 doz., 28 to 34 in., \$5.60; 36 in., \$5.80. Adze, 10 doz., 36 in., \$5.80; 36 in., \$7.80. Pick, 10 doz., R. R., 36 in., \$8.00; coal, 34 in., \$5.80. Hatchet, 10 doz., 12 to 14 in., \$2.00.

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.

Chicago Spring Butt Co.: Friction, 25% Oscillating, 25% Big Twin, 25% Chisholm & Moore Mfg. Co.: Luggage Car Door, 50% Elevator, 30% Railroad, 50% Cronk & Carrier Mfg. Co.: Loose Axle, 60% & 10% Roller Bearing, 70% Griffin Mfg. Co.: Solid Axle, No. 10, \$12.00, 60% & 10% Roller Bearing, No. 11, \$15.00, 60% & 10% Roller Bearing, Ex. Hy., No. 22, \$18.00, 60% & 10% Bull Dog, \$24.00, 70% Lane Bros. Co.: Parlor, Ball Bearing, \$4.00; Standard, \$3.15; No. 105, \$2.85; New Model, \$2.80; New Champagne per set of 4 Hangers, complete with track, \$2.25 Barn Door, Standard, 60% & 10% Hinged, Standard, net \$6.08 Covered, 60% & 5% Special, 70% & 5% Trolley Hangers and track, 80% Lawrence Bros.: Cleared, 70% & 7 1/2% Clipper, No. 15, 60% Crown, 55% & 10% Cyclone, No. 40, net \$6.50 Tandem, No. 50, net \$7.50 New York, 55% & 10% Trolley, No. 30, 1/2 pair, \$1.25 McKinney Mfg. Co.: Roller Bearing, Nos. 1 and 2, 70% Anti-Friction, 60% Hinged Hangers, King Charn, 60% Richards Mfg. Co.: Hangers, Nos. 47, 48, 117, 247, 60% & 5% Pioneer Wood Track, No. 3, \$2.25 Roller B'r'g St'l Track No. 12, \$2.20 Roller B'r'g St'l Track No. 13, \$2.20 Roller B'r'g, No. 30, 41, 70% & 7 1/2% Hero, Adj. Track No. 19, 50% & 10% Adjustable Track Tandem Trolley Track No. 16, 50% & 10% Seal, Steel Track No. 8, \$2.25 Auto Adj. Track No. 22, 50% & 5% Trolley B. D. No. 17, \$1.25; F. D., \$2.15; No. 120, \$2.25; No. 121, \$2.45; No. 130, \$2.50 Safety Underwriters F. D. No. 101, 50% Tandem No. 41, 2 1/2 and 3 60% & 10% Palace, Adjustable Track No. 132, 50% & 5% Royal, Adjustable Track No. 122, 50% & 10% Live Wood Track No. 1, \$2.25 Trolley B. D. No. 20, 50% & 10% Trolley B. D. No. 24, \$1.30; No. 27, \$1.40; No. 28, \$1.60 Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2, 70% & 7 1/2% Anti-friction, No. 42; No. 44, sizes 2 1/2 and 3, 60% Hinged Tandem No. 48, 60% & 5% Folding Door B. B. Swivel No. 135, 40% Taylor & Boggs F'y Co's Kidder's Roller Bearing, 100 doz., 4 in., \$12.00; 5 in., \$14.00, 40% & 10% Myers' Stayon Hangers, 60%

Hangers— Garment—

Pullman Trouser, 100 gro., No. 1 \$9.00; No. 4, \$24.00; No. 5, \$16.50; No. 8, Black Enamel, \$7.50; No. 10, \$21.00; No. 12, \$8.00; No. 15, Rods, \$9.00; No. 18, Loops, \$10.00
 Victor Folding, 100 gro., \$9.60

Gate—

Myers' Patent Gate Hangers, 100 doz., net 50%
 Joist and Timber—
 Lane Bros. Co., 35%

Hasps—

Griffin's Security Hasp, 50% & 10%
 McKinney's Perfect Hasp, 100 doz., 60%

Hatchets—

Regular list, first qual. 40¢ @ 10% @—
 Second quality, 50¢ @ 10% & 5% @—

Heaters, Carriage—

Clark, No. 5, \$1.25; No. 5B, \$1.50; No. 3, \$1.75; No. 3D, \$2.00; No. 7D, \$2.25; No. 3E, \$2.50; No. 1, \$3.00, 25%
 Clark Coal, 100 doz., \$0.75, 20%

Hinges—

Blind and Shutter Hinges
 Surface Gravity Locking Blind:
 Doz. Sets with Fastenings, No. 1, \$0.70; No. 3, \$1.25; No. 5, \$2.65.
 Mortise Shutter, 80%
 Mortise Reversible Shutter, 80%
 North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50, 10%
 Charles Parker Co., 70¢ @ 75%
 Parker Wire Goods Co.
 Hale & Benjamin Automatic Blind Hinges
 Hale's Blind Awning Hinges, No. 110, for wood, \$9.00; No. 111, for brick, \$9.00, 20%

Reading's Gravity.....60%

Stanley's Steel Gravity Blind Hinges, No. 1647 1/2, 100 doz. sets, without screws, \$0.95; with screws, \$1.25.
 Wrightsville Hardware Co.:
 O. S. Lull & Porter, 75¢ & 5%
 Acme, Lull & Porter, 75%
 Queen City Reversible, 75%
 Shepard's Noiseless, Nos. 60, 65, 55, 75¢ & 5%
 Niagara, Gravity Locking, Nos. 1, 3 & 5, 75¢ & 5%
 Clark's O. P., No. 1, 75¢ & 10%
 Clark's O. P., Nos. 3 and 5, 75¢ & 10%
 Tip Pat'n., No. 1, 75¢ & 10%
 Clark's No. 3, 75¢ & 10%
 Buffalo Gravity Locking, Nos. 1, 3 & 5, 70¢ & 10% & 5%
 Shepard's Double Locking, 75%
 Champion Gravity Locking, 75¢ & 10%
 Pioneer, 75%
 Empire, 65%
 W. H. Co.'s Mortise Gravity Locking, No. 2, 60% & 10%

Gate Hinges—

Clark's or Shepard's—Doz. sets:
 No. 1, 1 2 3
 Hinges with L't'chs, \$2.00 2.70 5.00
 Hinges only, 1.25 1.90 3.50
 Latches only, 70 75 35

New England:

With Latch, 100 doz., \$2.00
 Without Latch, 100 doz., \$1.60
 Reversible Self-Closing:
 With Latch, 100 doz., \$1.75
 Without Latch, 100 doz., \$1.35

Western:

With Latch, 100 doz., \$1.75
 Without Latch, 100 doz., \$1.15
 Wrightsville Hardware Co.:
 Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3, 70%

Miscellaneous—

Griffin Mfg. Co., Fleur de Lis Surface Hinges, 100 doz. prs., \$1.00
 Pivot Hinges—
 Bommer Bros., Pivot, Ball Bearing, 40%
 Lawson Mfg. Co., Matchless, 30%

Spring Hinges—

Holdback, Cast Iron, \$6.75 @ \$7.00
 Non-Holdback, Cast Iron, \$6.50 @ \$6.75
 J. Bardsley:
 Bardsley's Non-Checking Mortise Floor Hinges, 40%
 Bardsley's Patent Checking, 33%
 Bommer Bros.:
 Spring Butt Hinges, 40%
 Surface Floor, Ball Bearing, 40%
 Mortise Floor, Ball Bearing, 40%
 Lavatory Hinges, 40%
 Non-Holdback Screen Door, Nos. 2009 and 900, 40%
 Holdback Screen Door, No. 909, 100 gro., \$9.00
 Chicago Spring Butt Co.:
 Chicago Spring Hinges, 25%
 Triple End Spring Hinges, 50%
 Chicago (Ball Bearing) Floor, 50%
 Garden City Engine House, 25%
 Keene's Saloon Door, 25%
 Columbian Hardware Co.:
 Acme, Wrought Steel, 30%
 Acme, Brass, 30%
 American, 30%
 Columbia, 100 gr., No. 14, \$9.00; No. 18, \$25.00
 Columbia, Adj., No. 7, 1/2 gr. \$12.00
 Clover, new list, 30%
 Glen Leaf and Acorn, per gro., \$12.00
 Oxford, new list, 30%
 For Spring Hinges, 65% & 10%
 Columbian Steel, 65% & 10%
 Lawson Mfg. Co.:
 Matchless Spring Hinges, 30%
 Matchless Jamb Hinges, 30%
 Richards Mfg. Co.:
 Superior Double Acting Floor Hinges, 40%
 Shelby Spring Hinge Co.:
 Buckeye All Steel Holdback Screen Door, 100 gr., \$9.00
 Chief Ball Bearings Floor Hinge, 50%
 Ball Bearing Door, 25%
 No. 777, Sheet Steel Holdb'h, 100 gr., \$9.00
 Standard Mfg. Co.:
 Champion Double Acting Door Hinge, 25% & 10% & 10%
 Standard Double Acting Floor Hinge, 25% & 10% & 10%
 Superior Spring Hinge Co.:
 Superior Floor Hinges, 33% & 5%
 Spring Hinges, 33% & 5%

Wrought Iron Hinges—

Strap and T Hinges, &c., list February 10, 1908:
 Light Strap Hinges, 50% & 10%
 Heavy Strap Hinges, 60% & 5%
 Light T Hinges, 50%
 Heavy T Hinges, 40%
 Extra Hvy. T Hinges, 50% & 10%
 Hinge Hasps, 33% & 5%
 Cor. Heavy Strap, 60% & 5%
 Cor. Ez. Heavy T, 50% & 10%
 Screw Hook 6 to 12 in., 1b., 3 1/2¢
 and Strap, 1 1/2 to 20 in., 1b., 3 1/2¢
 22 to 36 in., 1b., 3¢

Screw Hook and Eye:

3/4 to 1 inch, 1b., 6 1/2¢

Hoes— Eye—
Scovill and Oval Pattern.
 60¢ 10¢ 60¢ 10¢ 10¢
Grub, list Feb. 23, 1899.
 70¢ 10¢ 70¢ 10¢ 10¢
 D. & H. Scovill.....27½¢
 Am. Fork & Hoe Co. (Scovill Pat-
 tern).....60¢ 50¢

Handled—
 Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50
 Star Double Bit.....\$2.50
 American Fork & Hoe Co.:
 Regular, Cotton.....75¢ 10¢ 5¢ 2½¢
 Crescent, Cultivator.....75¢ 2½¢
 Mattock, Senior.....70¢
 Mattock, Junior.....50¢
 Tobacco, Harper's.....66¢ 15¢ 10¢
 Warren.....55¢ 10¢ 10¢ 5¢
 Ivanhoe.....65¢ 15¢ 10¢
 Cultivator, B B 6.....70¢ 10¢ 10¢ 5¢
 Cultivator, B B 6½.....72¢ 10¢ 10¢ 5¢
 Weeding, Acme.....72¢ 10¢ 10¢ 5¢
 Scuffle, Lightning.....60¢ 5¢

Hoisting Apparatus—
 See Machines, Hoisting.

Holders— Bit—
 Angular, ½ doz. \$21.00.....45¢ 10¢

Door—
 Bardsley's, Iron, 40%; Brass and
 Bronze.....25¢
 Empire.....25¢
 Pullman.....25¢
 Richards Mfg. Co., No. 117, Ever-
 ready, 40%; Nos. 118, 119, Sure
 Grip.....50¢
 Superior.....33½¢

File and Tool—
 Nicholson File Holders and File
 Handles.....33½¢ 40¢

Fruit Jar—
 Triumph Fruit Jar Holder, ½ gross,
 \$18.00; ½ doz. \$2.00.....\$2.00

Trace and Rein—
 Fernald Double Trace Holder, ½ doz.
 pairs.....\$1.25
 Dash Rein Holder, ½ doz.....\$1.25

Hones—Razor—
 Pike Mfg. Co., Belgian and Swat,
 50%; German.....33½¢

Hooks—Cast Iron—
 Bird Cage, Reading.....40¢
 Clothes Line, Reading List.....40¢
 Coat and Hat, Reading.....45¢ 20¢
 Coat and Hat, Wrightsville.....60¢ 5¢
 Harness, Reading List.....40¢

Wire—
 Belt, Nos. 1 to 15.....75¢ 10¢ 80¢
 Wire C. & H. Hooks.....80¢ 80¢ 10¢
 Bradley Metal Clasp Wire, Coat and
 Hat.....75¢ 10¢ 80¢
 Columbian Hdw. Co., Gem.....75¢ 10¢
 Parker Wire Goods Co., King.....75¢ 10¢
 Wire Goods Co.:
 Acme, 60¢ 10%; Chief, 70¢ 10%;
 Crown, 75%; Czar, 65¢ 10%;
 Brace, 75%; Czar Harness, 50%;
 Ceiling, 75%.

Wrought Iron—
 Box, 6 in., per doz., \$0.90; 8 in.,
 \$1.15.....\$1.15
 Cotton.....doz. \$1.25 to \$1.50
 Wrought Staples, Hooks, &c.—
 See Wrought Goods.

Miscellaneous—
 Hooks, Bench, see Staps, Bench.
 Bush, Light, doz., \$6.20; Medium,
 \$6.75; Heavy, \$7.65
 Grass, best, all sizes, per doz.,
 \$2.75 to \$3.00
 Grass, common grades, all sizes,
 per doz.....\$1.25 to \$1.50
 Whiffletree.....lb. 5¢ 4¢ 6¢
Hooks and Eyes:
 Brass.....60¢ 60¢ 10¢
 Malleable Iron.....70¢ 70¢ 10¢
 Covert Mfg. Co. Gate and Scuttle
 Hooks.....40¢
 Turner & Stanton Co. Cup and
 Shoulder.....65¢ 10¢
 Bench Hooks—See Bench Staps.
 Corn Hooks—See Knives, Corn.

Horse Nails—
 See Nails, Horse.

Horseshoes—
 See Shoes, Horses.

Hose, Rubber—
 Garden Hose, ¾-inch:
 Competition.....ft. 6¢ 4¢ 4¢
 3-ply Guaranteed.....ft. 8¢ 4¢ 4¢
 4-ply Guaranteed.....ft. 9¢ 4¢ 4¢
 Cotton Garden, ¾-in., coupled:
 Low Grade.....ft. 8¢ 9¢
 Fair Quality.....ft. 10¢ 11¢

Irons— Sad—
 From ½ to 10.....lb. 2½¢ 2½¢ 4¢
 B. B. Sad Irons.....lb. 3½¢ 3½¢ 5¢
 Mrs. Potts', cents per set:
 Nos. 50 55 60 65
 Jap'd Caps.....86 93 96 93
 Tin'd Caps.....91 88 101 98
 New England Pressing.....lb. 3½¢ 4¢

Bar and Corner—
 Richards Mfg. Co., Bar, 60¢ 10%;
 Corner.....60¢

Pinking—
 Pinking Irons.....doz. 60¢ 60¢ 5¢

Irons, Soldering
 See Coppers.

Jacks, Wagons—
 Covert Mfg. Co.:
 Auto Screw.....30¢ 2½¢; Steel, 45¢
 Lockport.....50¢
 Lane's Steel.....30¢ 5¢
 Richards' Tiger Steel, No. 130.....50¢ 10¢
 Smith & Hemenway Co.'s.....25¢

Ladder—
 Richards Mfg. Co., Ladder Jacks, 50%

Jointers—
 Pike Mfg. Co., Saw Jointers, \$7.00.....40%

Kettles—
 Brass, Spun, Plain.....20¢ 25¢
 Enamelled and Cast Iron—See Ware,
 Hollow.

Knives—
Butcher, Kitchen, &c.—
 Foster Bros.' Butcher, &c.....30%
 Wilkinson Shear & Cutlery Co.....60%

Corn—
 Columbian Cutlery Co., Wilcut
 Brand Knives and Hooks.....60%
 American Fork & Hoe Co.:
 Easy Cut, ½ doz., No. 10 C H.....\$2.20
 Easy Cut, ½ doz., No. 10 B C H.....\$2.20
 Acme, ½ doz.....\$2.35
 Dent, ½ doz.....\$2.35
 Adjustable, Serrated, ½ doz.....\$1.90
 Serrated, ½ doz.....\$1.85
 Yankee, No. 1 C H.....\$1.35
 Yankee, No. 2 C H.....\$1.15

Drawing—
 Standard List.....80¢ 10¢ 4¢
 C. E. Jennings & Co., Nos. 15, 46,
 25 and 7½¢
 Jennings & Griffin, Nos. 41, 42,
 66 and 7½¢
 Swan's.....66¢ 70¢
 Watrous.....16¢
 L. & I. J. White.....20¢ 25¢

Hay and Straw—
 Serrated Edge, per doz. \$5.00 to \$5.50
 Iwan's Sickle Edge.....½ doz. \$9.50
 Iwan's Serrated.....½ doz. \$10.00

Miscellaneous—
 Farriers'.....doz. \$2.80 to \$3.55
 Westenhof's.....½ doz. \$3.00 to \$3.25

Knobs—
 Base, 2½-inch, Birch or Maple,
 Rubber Tip.....gro. \$1.25 to \$1.40
 Carriage, Jap., Drive, all sizes,
 gro. 35¢ 40¢
 Door, Mineral.....doz. 65¢ 70¢
 Door, Por. Jap'd.....doz. 70¢ 75¢
 Door, Por. Nickel.....doz. \$2.05 to \$2.15
 Bardsley's Wood Door, Shutters, &c. 15%

Lacing, Leather—
 See Belting, Leather

Ladders, Store, &c.
 Lane's Store.....25%
 Myers' Noiseless Store Ladders.....50%
 Richards Mfg. Co.:
 Improved Noiseless, No. 112.....50%
 Climax Shelf, No. 113.....50%
 Trolley, No. 109.....50%

Ladies, Melting—
 L. & G. Mfg. Co., Melting and
 Plumbers'.....25%
 P. S. & W.....40¢ 10¢
 Reading.....60%

Lamps—
 Hammer's M. I. Hand.....40%

Lanterns—Tubular—
 Regular, No. 0.....doz. \$4.35 to \$4.50
 Side Lift, No. 0.....doz. \$4.60 to \$4.75
 Hinge Globe, No. 0.....doz. \$4.60 to \$4.75
 Other Styles.....40¢ 40¢ 10¢

Bull's Eye Police—
 3-inch.....\$3.75 to \$4.00

Latches—Thumb—
 Roggin's Latches, Jap'd, with
 Screws.....doz. 35¢ 40¢

Door—
 Cronk & Carrier Mfg. Co., No. 101,
 ½ doz. \$2.00
 Richards' Bull Dog, Heavy, No.
 123.....\$0.85
 Richards' Trump, No. 127.....\$1.50

Leaders, Cattle—
 Small.....doz. 50¢; large, 60¢
 Covert Mfg. Co.:
 Cotton, 45%; Hemp, 45%; Jute,
 35%; Sisal, 20%.

Leathers, Pump—
 See Pumps—

Lifters, Transom—
 R. & E.....10%

Lines—
 Wire Clothes, Nos. 18 19 20
 100 feet.....\$2.30 1.95 1.75
 75 feet.....\$1.95 1.65 1.50
 Samson Cordage Works:
 Solid Braided Chalk, Nos. 0 to 3.....40%
 Solid Braided Masons'.....30%
 Silver Lake Braided Chalk, No. 0,
 \$6.00; No. 1, \$6.50; No. 2, \$7.00;
 3, \$7.50.....per gr. 20%
 Masons' Lines, Shade Cord, &c.:
 White Cotton, No. 3½, \$1.50; No. 4,
 \$2.00; No. 4½, \$2.50; Colors, No. 3½,
 \$1.75; No. 4, \$2.25; No. 4½, \$2.75;
 Linen, No. 3½, \$2.50; No. 4, \$3.50;
 No. 4½, \$4.50.....20%
 Tent and Awning Lines: No. 5,
 White Cotton, \$7.50; Drab Cotton,
 \$8.50.....20%
 Clothes Lines, White Cotton: 50 ft.,
 \$2.75; 60 ft., \$3.25; 70 ft., \$3.75;
 80 ft., \$4.00; 90 ft., \$4.25; 100 ft.,
 \$4.75.....20%
 Turner & Stanton Co.:
 Solid Braided Chalk, Masons' and
 Awning Lines.....40%
 Clothes Lines, White Cotton.....20%
 Shade Cord, Cotton or Linen.....20%

Locks— Cabinet—
 Cabinet Locks.....33½¢ 33½¢ 45%
Door Locks, Latches, &c.—
 NOTE—Net Prices are very often made
 on these goods.
 Reading Hardware Co.....40%
 R. & E. Mfg. Co.....10%

Padlocks—
 R. & E. Mfg. Co. Wrought Steel and
 Brass.....75¢ 10%

Sash, &c.—
 Ives' Patent:
 Crescent.....10%
 Automatic Gravity Metal Sash, 10%
 gro. \$119.58.....10%
 Window Ventilating.....10%
 Pullman Patent Ventilating Lock.....25%
 Reading Sash Locks.....40%
 Taylor Mfg. Co., Perfect Ventilating,
 ½ doz.....\$0.75 to \$1.00

Machines—Boring—
 Com. Upr't, without Augers,
 \$2.00 to \$2.25
 Com. Angl'r, without Augers,
 \$2.25 to \$2.50
 Ford Auger Bit Co.....\$22.00
 Jennings' Nos. 1 and 4.....25¢ 7½¢
 Millers' Falls.....57½¢
 Snell's, Upright, \$2.65; Angular, \$2.90
 Swan's Improved.....40¢ 10%

Corking—
 Reisinger Invincible Hand Power.....
 ½ doz. \$48.00

Fence—
 Williams' Fence Machines.....each. \$5.50

Hoisting—
 Moore's Anti-Friction Chain Hoist.....30%
 Moore's Hand Hoist, with Lock
 Brake.....20%
 Moore's Cyclone High Speed Chain
 Hoist.....25%

Ice Cutting—
 Chandler's.....12½%

Washing
 Boss Washing Machine Co.: Per doz.
 Boss No. 1.....\$57.00
 Boss Rotary.....\$57.00
 Champion Rotary Banner No. 1.....\$57.00
 Standard Champion No. 1.....\$50.00
 Standard Square Western.....\$53.00
 Cincinnati American, Round.....\$53.00

Mallets—
 Hickory.....45¢ 50¢
 Lignumvite.....45¢ 50¢
 Tinnors' Hickory and Apple-
 wood.....doz. 45¢ 50¢

Mangers, Stable—
 Sweet Iron Works.....50%

Mats, Door—
 Acme Flexible Steel.....50%
 Elastic Steel (W. G. Co.), new list, 50%

Mattocks—
 See Picks and Mattocks.

Milk Cans—See Cans, Milk.

Mills, Coffee, &c.—
 Enterprise Mfg. Co.:
 Coffee.....20¢ 25¢
 Shell and Corn.....25¢ 10¢
 National list Jan. 1, 1902.....30%
 Parker's Columbia and Victoria.....33½%
 Parker's Box and Side.....50¢ 10¢
 Swift, Lane Bros. Co.....30%

Motors, Water—
 Divine's Red Devil.....30%
 \$2.50 3.50 10.00 15.00.....33½%
 No. 1 2 3 4
 Lippincott's:
 No.....1 2 3 4
 \$2.50 3.50 10.00 15.00.....33½%
 Pike Mfg. Co., Tool and Knife
 Grinding.....33½%

Mowers, Lawn—
 NOTE—Net prices are generally quoted
 Cheapest, 10-in., \$2.00; advance
 10¢ for each size.
 Cheap, 10-in., \$2.25; advance 15¢
 20¢ for each size.
 Better Grade, 10-in., \$3.00; ad-
 vance 25¢ for each size.
 High Grade.....\$4.50 4.75 5.00 5.25
 Continental.....70%
 Great American.....70%
 Great American Ball B'r'g, new list, 70%
 Quaker City.....70%
 Pennsylvania.....60%
 Pennsylvania, Jr., Ball Bearing,
 50 and 104.5.....50%
 Pennsylvania Golf.....50%
 Pennsylvania Horse.....33½% 5¢
 Pennsylvania Pony.....40% 5¢

Nails—
 Wire Nails and Brads, Miscel-
 laneous.....85¢ 85¢ 10%
 Cut and Wire. See Trade Report.
 Hungarian, Finishing, Upholster-
 ers, &c. See Tacks.

Horse—
 Nos. 6 7 8 9 10
 Anchor.....23 21 20 19 18.....per lb. 12¢
 Coleman.....13 12 12 11 11 net, 12¢
 New Haven.....23 21 20 19 18.....per lb. 12¢
 Livingston.....19 18 17 16 15.....net, 12¢
 Western.....per lb. 6¢ 4¢
 Jobbers' Special Brands.....per lb. 9¢

Picture—
 1½ 2 2½ 3 in.
 Brass Hd. gro. 45 55 60 70
 Por. Head, gro. 1.10 1.10 1.10

Upholsters—
 Brass.....30%
 Plated.....30¢ 10%

Nippers—
 See Pliers and Nippers.

Nipples—
 Standard Nipple Co.:
 Wrought Pipe Nipples.....80%
Nuts—Blank or Tapped.
 Cold Punched: Off list.
 Square.....5.70¢
 Hexagon.....5.70¢
 Square, C. T. & R.....5.70¢
 Hexagon, C. T. & R.....6.50¢

Hot Pressed: O.T. list.
 Square.....5.80¢
 Hexagon.....6.30¢

Oakum—
 Best.....lb. 6½¢
 U. S. Navy.....lb. 6¢
 Navy.....lb. 5¢
 Plumbers' Spun Oakum.....2½¢ 43¢

Oil—
 Pike Mfg. Co., Stonoil.....40%

Oil Tanks—See Tanks, Oil.

Oilers—
 Steel, Copper Plated.....75%
 Chase or Paragon:
 Brass and Copper.....50¢ 10%
 Zinc.....65¢ 10¢ 70%
 Railroad.....60¢ 10¢ 10%
 Malleable, Hammer's Improved, Nos.
 11, 12 and 13, 10%; Old Pattern,
 Nos. 1, 2, 3, 4, 50%
 American Tube & Stamping Co.:
 Spring Bottom Cans.....70¢ 70¢ 10%
 Railroad Oilers, &c.....60¢ 60¢ 10%
 Maple City Mfg. Co.:
 Spring Bottom Cans.....70¢ 70¢ 10%
 Railroad Oilers, &c.....60¢ 60¢ 10%

Openers—Packing Box—
 Herculever, ½ doz., \$24.....30%

Can Openers—
 Per doz.
 Sprague, Iron Handle.....30¢ 35¢
 Sprague, Wood Handle.....40¢
 Sardinia Scissors.....\$1.75 to \$3.00
 Can and Bottle Openers, ½ doz.,
 net: Yankee, \$0.75 to \$0.85; Little
 Gem, \$0.50 to \$0.65; Nifty.....\$0.75

Egg—
 Hartigan Nickel Plate, ½ doz., \$2.00;
 Silver Plate, \$4.00.

Packing—
 Asbestos Packing, Wick and
 Rope, any quantity.....18¢ 20¢

Rubber—
 (Fair quality goods.)
 Sheet, C. I.....11¢ 12¢
 Sheet, C. O. S.....11¢ 12¢
 Sheet, C. B. S.....12¢ 13¢
 Sheet, Pure Gum.....40¢ 45¢
 Sheet, Red.....40¢ 50¢
 Jenkins' '96, ½ lb. 80¢.....25%

Miscellaneous—
 American Packing.....lb. 7¢ 10¢
 Cotton Packing.....lb. 16¢ 25¢
 Italian Packing.....lb. 9¢ 10¢
 Jute.....lb. 9¢ 14¢
 Russia Packing.....lb. 9¢ 10¢

Pails, Water, Well, &c.—
 See Buckets.

Paint—
 Dixon's Silica-Graphite, in 1 gal.
 pails and 5 gal. kegs, 25%; pack-
 ages of larger size.....20%

Pans—Dripping—
 Standard List.....75¢ 10¢ 80%
 Edwards, Royal Blue.....75%

Fry—
 Common Lipped:
 Nos.....1 2 3 4 5
 Per doz.....\$0.75 0.85 0.95 1.15 1.30

Refrigerator, Calva.—
 Inch.....12 14 16 18
 Per doz.....\$1.75 2.25 2.80 3.15

Paper—Building Paper
 Asbestos.....lb.
 Roll Board or Building Felt,
 6 to 30 lb., per 100 sq. ft.....2½¢
 Roll Board or Building Felt,
 3-32 and ¼ in., 45 to 60 lb.,
 per 100 sq. ft.....3½¢
 Mill Board, Sheet, 40 x 40 in.,
 1-32 to ½ in.....per roll. 3¢

Rosin Sized Sheathing: 500 sq. ft.
 Light weight, 25 lbs. to roll,
 48¢ 58¢
 Medium weight, 30 lbs. to roll,
 56¢ 70¢
 Heavy weight, 40 lbs. to roll,
 75¢ 78¢

Black Water Proof Sheathing,
 500 sq. ft., 1 ply, 65¢; 2 ply,
 85¢; 3 ply, \$1.10; 4 ply, \$1.25.
 Deafening Felt, 9, 6 and 4½ sq.
 ft. to lb., ton.....\$54.50
 Red Rope Roofing, 250 sq. ft.
 per roll.....\$1.75

Tarred Paper—
 1 ply (roll 400 sq. ft.), ton,
 \$31.00 to \$38.00
 2 ply, roll 108 sq. ft.....65¢
 3 ply, roll 108 sq. ft.....83¢
 Slater's Felt (roll 500 sq. ft.) 80¢

Sand Paper and Cloth—
 Flint and Emery.....50¢ 10%
 Garnet Paper and Cloth.....25%

Parers—Apple—
 Goodell Co.:
 Family Bay State.....½ doz. \$15.00
 Improved Bay State.....½ doz. \$36.00
 New Lightning.....½ doz. \$7.00
 Turn Table '98.....½ doz. \$6.00
 White Mountain.....½ doz. \$7.00
 Panama Improved.....each \$7.50
 Dandy.....each \$10.00
 Eureka Improved.....each \$20.00
 New Century.....each \$20.00
 Ranger.....each \$30.00

Livingston Nail Co.:	per doz.	\$4.00
Daisy	per doz.	\$5.00
Little Star	per doz.	\$5.00
Rocking Table	per doz.	\$6.20
Reading Hardware Co.:		
Advance	per doz.	\$4.00
Baldwin	per doz.	\$4.00
Reading 72	per doz.	\$3.25
Reading 78	per doz.	\$6.25

Orange—

Goodell Co., Success	each	\$20.00
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Potato—

Saratoga	per doz.	\$7.90
White Mountain	per doz.	\$6.00

Picks and Mattocks—

(List Jan., 1908.)

List	75¢10%
Cronk's Handled Garden Mattock	
per doz.	\$3.00

Pinking Irons—

See Irons, Pinking.

Pins, Escutcheon—

Brass	50¢50¢10%
Iron, list Nov. 11, '85	60¢60¢10%

Pipe, Cast Iron Soil—

Standard, 2-6 in.	75¢10%
Extra Heavy, 2-6 in.	75¢10¢80%
Fittings, Standard and Heavy	80¢10¢85%

Pipe, Merchant—

Consumers, Carloads, Steel, Iron.			
Bk. Galv. Bk. Galv.			
1/2 and 1/4 in.	%	%	%
1/2 in.	68	51	66
1/4 in.	70	58	68
1/2 to 6 in.	74	61	72
7 to 12 in.	71	56	69

Pipe, Vitrified Sewer—

Carload lots.	
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:	
First-class	87%
Second-class	90%

Pipe, Stove—

Per 100 joints.			
C. L. L. C. L.			
Edwards' Nested:			
5 in., Standard Blue	\$6.25	\$7.25	
6 in., Standard Blue	6.75	7.75	
7 in., Standard Blue	7.75	8.75	
5 in., Royal Blue	7.00	8.00	
6 in., Royal Blue	7.50	8.50	
7 in., Royal Blue	8.50	9.50	
Wheeling Corrugating Co.'s Nested:			
5 in., Uniform Color	\$5.90	\$6.90	
6 in., Uniform Color	6.40	7.40	
7 in., Uniform Color	7.40	8.40	

Planes and Plane Irons—

Wood Planes—			
Bench, first qual.	30¢	30¢	10%
Bench, second qual.	40¢	40¢	10%
Molding	25¢	25¢	10%
Chapin-Stephens Co.:			
Bench, First Quality.....	30%		
Bench, Second Quality.....	40%		
Molding and Miscellaneous ..	25%		
Tory and German.....	30%		
Finop	60%		

Iron Planes—

Chaplin's Iron Planes.....	61%
Union	60%
Plane Irons—	
Wood Bench Plane Irons, list	
Dec. 12, '06.	25%
Buck Bros.	30%
Chapin-Stephens Co.	25%
Union	50%
L. & I. J. White.	20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse	per doz.	\$7.50
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Plates—

Felco	per lb.	3¢1/4¢
Avery Stamping Co.		
Standard Wrot. Steel Felco Plates	in 100 lb. kegs, per 100 lb., 1/4-in. to 1 1/4-in., \$4.00 net; 1 1/4-in. to 2-in., inclusive, \$3.75 net.	

Steel Pipe Hook—

Never-Break	75¢10%
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Pliers and Nippers—

Button Pliers	75¢65¢75¢10¢65%
Gas Burners, per doz., 5 in.	\$1.25
Gas pipe, 7 8 10 12-in.	\$2.00 \$2.25 \$2.75 \$3.50
Acme Nippers	50¢
Cronk & Carrier Mfg. Co.:	
American Button	80%
Improved Button	75¢10%
Cronk's	60%
No. 80 Linemen's	50%
Stub's Pattern	45%
Combination and others	33%
Heller's Farriers' Nippers, Pincers and Tools	40¢45¢40¢10¢5%
P., S. & W. Timmers' Cutting Nippers	40%
Swedish Side, End and Diagonal	50%
Utica Drop Force & Tool Co.	40%
Pliers and Nippers, all kinds	40%

Plumbs and Levels—

Chapin-Stephens Co.:	
Plumbs and Levels	30¢30¢10%
Chapin's Imp. Brass Cor.	40¢40¢10%
Pocket Levels	30¢30¢10%
Extension Sights	30¢30¢10%
Machinist's Levels	40¢40¢10%
Diston's Plumb and Levels	60¢10%
Diston's Pocket Levels	60¢10%
Stanley's Duler	35%
Woods' Extension	33%

Points, Glaziers—

Bulk and 1-lb. papers	1 lb. 9¢
1/2-lb. papers	1 lb. 9¢
1/4-lb. papers	1 lb. 1¢

Police Goods—

Manufacturers' Lists. 25¢25¢5%

Polish—Metal, Etc—

Ladd Co.:	
Putzade Liquid, per gro., 1/4 pts.	\$12.00; 1 pta., \$20.00; 1 qts., \$40.00;
per doz., 1/2 gals., \$6.35; 1 gal., \$12.00.	
Prestoline Liquid, No. 1 (1/2 pt.), per	doz., \$3.00; No. 2 (1 qt.), \$9.00; 40%
Prestoline Paste	40%
George William Hoffman:	
U. S. Metal Polish Paste, 3 oz.	boxes, per doz. 50¢; per gro. \$1.50;
1/2 lb boxes, per doz. \$1.25; 1 lb	boxes, per doz. \$2.25.
U. S. Liquid, 8 oz. cans, per doz.,	\$1.25.
Barkeepers' Friend Metal Polish, per	doz., \$1.75.

Stove—

Black Eagle Benzine Paste, 5 lb. cans,	per lb. 10¢
Black Eagle, Liquid, 1/2 pt. cans,	per doz. 75¢
Black Jack Paste, 1/2 lb. cans, per gr.	\$2.00
Black Kid Paste, 5 lb. cans, each,	\$0.65
Ladd's Black Beauty Liquid, per	100 tins, \$6.75
Joseph Dixon, per gr. \$5.75	10%
Dixon's Plumbago	per lb. 8¢
Fireside	per gr. \$1.50
Gem, per gr. \$1.50	10%
Jet Black	per gr. \$3.50
Peerless Iron Enamel, 10 oz. cans,	per doz. \$1.50

Window Polish—

Benj. P. Forbes:	
Glasbright, No. 2, gal. pails, per doz.,	\$24.00; each, \$2.50; 1 lb. cans,
each	75¢
Glasbright Powder, bbls., per lb.	25¢

Poppers, Corn—

1 qt. Square, per doz. \$0.80; per gro.	\$8.75
1 qt. Round, per doz. \$0.90; per gro.	\$10.00
1 1/2 qt. Square, per doz. \$1.20; per gro.	\$12.00
2 qt. Square, per doz. \$1.50; per gro.	\$15.00

Post Hole and Tree Augers and Diggers—

See also Diggers, Post Hole, etc.

Posts, Steel—

Steel Fence Posts, each, 6 ft., 16¢;	
6 1/2 ft., 48¢; 7 ft., 50¢.	
Steel Hitching Posts, each	\$1.30

Potato Parers—

See Parers, Potato.

Pots, Glue—

Enameled	40%
Tinned	30¢10%

Powder—

In Canisters:	
Duck, 1 lb.	each 45¢
Fine Sporting, 1 lb.	each 75¢
Rifle, 1/4 lb.	each 25¢
Rifle, 1 lb.	each 25¢

In Kegs:

1/2-lb. kegs	\$3.50
1-lb. kegs	\$4.60
King's Semi-Smokeless:	
Keg (25 lb. bulk)	\$6.50
Half Keg (12 1/2 lb. bulk)	\$3.50
Quarter Keg (6 1/4 lb. bulk)	\$1.90
Case 24 (1 lb. cans bulk)	\$8.50
Half case (1 lb. cans bulk)	\$4.50
King's Smokeless: Shot Gun, Rifle,	
Keg (25 lb. bulk)	\$12.00 \$15.00
Half Keg (12 1/2 lb. bulk)	6.25 7.75
Quarter Keg (6 1/4 lb. bulk)	3.25 4.00
Case 24 (1 lb. cans bulk)	14.00 17.00
Half case 12 (1 lb. c. bk.)	7.25 8.75

Presses—

Fruit, Wine and Jelly—	
Enterprise Mfg. Co.	20¢25%

Seal Presses—

Morrill's No. 1, per doz., \$20.00	50%
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Pruning Hooks and Shears

See Shears.

Pullers, Nail, Etc.—

Cyclops	50%
Miller's Falls, No. 3, per doz.	\$12.00.
Morrill's No. 1, Nail Puller, per doz.	\$20.00
Pearson No. 1, Cyclone Spike Puller,	each \$30.00
The Stanton Co., Case Lots:	
No. 2B (small)	\$5.50
Smith & Hemenway Co.:	
Diamond B.	70%
Giant	50%
Staple Pullers, Utica and Davi-	son
Taylor Mfg. Co., Sampson Track,	per doz. \$0.40

Pulleys, Single Wheel—

Inch	1 1/2 1 3/4 2 3
Acting on Tackle,	
doz.	\$0.30 .45 .60 1.05
Hay Fork, Squirrel or Solid Eye,	
doz., 1 in., \$1.25; 5 in., \$1.57	
Inch	2 2 1/2 2 1/2
Hot House, doz.	\$0.65 .85 1.20
Inch	1 1/4 1 1/2 1 3/4 2
Screw, doz.	\$0.16 .19 .23 .30
Inch	1 1/4 2 2 1/2 2 1/2
Side, doz.	\$0.25 .40 .55 .60
Inch	1 1/2 1 3/4 2 2 1/2

Sash Pulleys—

Common Frame; Square or	
Round End, per doz., 1 1/2 and	2 in.
	17¢20¢

Auger Motors, no Pace Plate,

per doz., 1 1/2 and 2 in.	20¢21¢
Acme, No. 35, 1 1/2 in., 19¢; 2 in., 20 1/2¢	
American Pulley Co.:	
Wrought Steel American Plain	
Axle	50¢10%
Wrought Steel Eagle	17¢20¢
Top Notch, Electrically Welded,	
Nos. 3 and 4	19¢
Common Sense, per doz.	20¢
Fox-All-Steel, Nos. 3 and 7, 2 in.	20¢
Grand Rapids All Steel Noiseless	50%
Niagara, No. 25, 1 1/2 in., 19¢; 2	in., 20 1/2¢
No. 26 Troy, 1 1/2 in., 14 1/2¢; 2 in., 16 1/2¢	
Star, No. 25, 1 1/2 in., 19¢; 2 in., 20 1/2¢	
Tackle Blocks—See Blocks.	

Pumps—

Cistern	60%
Pitcher Spout	75¢45¢75¢10%
Wood Pumps, Tubing, etc.	50%
Barnes Dbl. Acting (low list)	50%
Barnes Pitcher Spout	50%
Contractors' Rubber Diaphragm,	
2 B. & L. Block Co.	\$16.00
Daisy Spray Pump	per doz. \$6.50
Flint & Walling's Fast Mail Hand	(low list)
Flint & Walling's Fast Mail (low	list)
Flint & Walling's Tight Top	80%
National Specialty Mfg. Co., Measur-	ing, Nos. 2, \$6.00; 3, \$5.50
Myers' Pumps (low list)	30%
Myers' Power Pumps	50%
Myers' Spray Pumps	50%

Pump Leathers—

Plunger and Valve Leathers—Per	
gro.:	
No.	1 2 3 4
	\$5.00 6.00 7.00 8.00
Cup Leathers—Per 100:	
Inch.	2 1/2 3 3 1/2 4
	\$5.00 7.00 9.00 12.00

Punches—

Saddlers' or Drive, good,	doz. 50¢75¢
Spring, single tube, good qual-	
ity	\$1.75
Revolving (1/4 tubes)	doz. \$3.50
Bemis & Call Co.'s Cast St'l Drive	50%
Morrill's Nos. 1, 1A, 1A, 1B, 1C,	
1D, \$15.00	50%
Hercules, 1 die, each	\$5.00
Niagara Hollow Punches	40%
Niagara Solid Punches	55¢10%
Timmers' Hollow P., S. & W. Co.	40%
Timmers' Solid P., S. & W. Co.	40%
doz., \$1.44	40¢10%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron,	2 1/2¢2 3/4¢
Sliding Door, Wrought Brass,	
1 1/2 in., lb., 36¢	30%
Cronk's:	
Double Braced Steel Rail, per ft.	2 1/2¢
O. N. T. Rail	2 1/2¢
Griffin's:	
xxx, per 100 ft., 1 x 3-16 in.	\$3.25;
1 1/4 x 3-16 in.	\$3.75;
Hinged Hanger, per 100 ft., 1 x 3-16	in., \$3.50; 1 1/4 x 3-16 in., \$4.00.
Lane's:	
Hinged Track, per 100 ft.	\$3.45
O. N. T., per 100 ft., 1 in.	\$3.12 1/2;
1 1/4 in., \$3.15; 1 1/2 in., \$4.00.	
Standard, 1 1/4 in.	per 100 ft. \$1.00
Lawrence Bros.:	
1 x 3-16 in., per 100 ft.	\$7.50; 1 1/4 x
3-16 in., \$8.75; 1 1/2 in., \$5.50	7 1/2¢
Trolley, No. 301, per ft.	9¢
McKinney's:	
Hinged Hanger Track, per ft., 1 1/2	
Myers' Stayon Track	60¢50%
Richards Mfg. Co.:	
Common, 1 x 3-16 in., \$3.00; 1 1/4 x	3-16, \$3.25; 1 1/2 x 3-16, \$3.50.
Special Hinged Hanger Rail, 60¢10%	
Lag Screw Rail, No. 65	50%
Gauge Trolley Track, per ft., No. 31,	9¢; No. 32, 14¢; No. 33, 20¢.
No. 50	60¢10%
Nos. 61, \$3.00; 62, \$3.25; 63, \$3.50; 64,	\$4.00; 65, \$3.25; 66, \$3.50; 67, \$4.00; 68, \$4.50; 69, \$5.00; 70, \$5.50.

Rakes—

NOTE—Many goods are sold at net prices.

American Fork & Hoe Co.:	
Lawn, per doz., No. 24, \$2.50; No.	20
Cronk's:	
Steel Garden: Champion, per doz.,	12-tooth, \$3.75; 14-tooth, \$4.00; 16-
tooth, \$4.25; Ideal, per doz., 12-	tooth, \$3.00; 14-tooth, \$3.30; 16-
tooth, \$3.60.	
Victor, 12-tooth, \$2.25; 14-tooth,	\$2.50; 16-tooth, \$2.75.
Queen City Lawn, per doz., 20 teeth,	\$2.85; 24, \$3.00.
Anticlog Lawn, per doz.	\$4.00
Malleable Garden	70¢10%
Ideal Steel Garden, per doz., 12 teeth,	\$15.00; 14, \$16.00; 16, \$18.00.
Fisher's:	
Jumbo Lawn, 36-tooth	per doz. \$5.00
Lawn Queen, 20-tooth	per doz. \$2.85
Lawn Queen, 24-tooth	per doz. \$3.00
Paragon, 20-tooth	per doz. \$2.65
Paragon, 21-tooth	per doz. \$2.75
Steel Garden, 14-tooth	per doz. \$2.40
Malleable Garden, 11-tooth	per doz. \$1.75@2.00

Rasps, Horse—

Diston's	75%
Heller Bros.	70¢50¢70¢10¢5%
Liveright Bros.' Gold Medal	70¢10¢75%
McCaffrey's American Standard	60¢10¢5%
New Nicholson	70¢10¢75%
See also Files.	

Razors—

John Eugstrom Swedish	45%
Sharp Shaver	60%
Fox Razors, per doz., No. 42,	\$24.00; No. 44, \$20.00; No. 82,
Platina, \$36.00.	25%

Reels, Fishing—

Hendryx:	
M 6, Q 6, A 6, B 6, M 9 1/4, M 16,	
Q 16, A 16, B 16, 4008, Rubber,	
Populo, Nickel Plated	20%
Aluminum, German Silv., Bronze,	25%
1210 N, 121 N	20%
3004 N, 06 N, 6 RM, G 8	20%
6 N, PN 21 N, 6 N	20%
2904 P, 33 1/2 N	2001 PN, 33 1/2 N
0924 N, 33 1/2 N	02081 N, 33 1/2 N
002904 N, 33 1/2 N	802 N, 33 1/2 N
086 PN, 2904 N, 971 PN	25%
5009 PN, 5009 N	20%
Competitor, 102 P, 102 PN, 202 P	20%
202 PN, 102 PN, 202 PN	20%
33 1/2 P, 301 PN, 00304 P, 00304 PN	33 1/2 N

Balance of 1907 list 33½%
Lectro (Artificial), per doz., \$12.00 33½%
Lightning (Artificial), per doz., \$12.00 33½%
\$18.00 33½%

Stoppers, Bottle—

Victor Bottle Stoppers, per doz., \$9.00

Stops—Bench—

Millers Falls, per doz., No. 1, \$10.00 50%
Morrill's, per doz., No. 2, \$12.50 50%
Morrill's, No. 2, \$12.50 50%

Door—

Chapin-Stevens Co., per doz., \$50.00 50% 10%

Plane—

Chapin-Stevens Co., per doz., \$20.00

Straps—Box—

Acme Embossed, case lots, 20x10x10%
Cary's Universal, case lots, 20x10x10%

Stretchers, Carpet—

Cast Iron, Steel Points, per doz., \$5.00

All Steel Socket, per doz., \$2.00 25%
Excelsior Stretcher and Tack Hammer Combined, per doz., \$6.00 20%

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses, per doz., \$25.00 7½%

National Specialty Co., list Jan. 1, 1902, per doz., \$30.00 5%

P. S. & W. Co., per doz., \$10.00 5%

Sweepers, Carpet—

Bissell Carpet Sweeper Co., per doz., \$36.00

Cyco Bearing Superba, \$36.00

Triumph, \$33.00; Parlor Queen, \$30.00; Elite, \$29.00; Boudoir, \$27.00; American Queen, \$25.00; Ideal, \$25.00; Gold Medal, \$24.00; Premier, \$24.00; Prize, \$24.00; Welcome, \$24.00; Grand Rapids, Nickel, \$24.00; Japan, \$22.00; Crystal, \$20.00; Grand, \$20.00; Parlor Grand, \$18.00; Club, \$14.00; Hall, \$10.00; Standard Nickel, \$12.00; Standard Japan, \$10.00; Crown Jewel, Nickel, \$12.00; Crown Jewel, Japan, \$10.00; Junior, Nickel, \$22.00; Junior, Japan, \$20.00.

NOTE.—Rebates: 50c per dozen on three dozen lots; \$1 per dozen on five dozen lots; \$2 per dozen on ten dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks, 90x25@—%

American Cut Tacks, 90x25@—%

Sveedes Cut Tacks, L., 90x30@—%

Sveedes Upholsterers', 90x35@—%

Gimp Tacks, 90x35@—%

Lace Tacks, 90x35@—%

Trimmers' Tacks, 90x30@—%

Looking Glass Tacks, 65x40@—%

Bill Posters' and Railroad Tacks, 90x90@—%

Hungarian Nails, 8x6@—%

Finishing Nails, 7x6@—%

Trunk and Clout Nails, 7x5@—%

NOTE.—The above prices are for straight weights.

Miscellaneous—

Double Pointed Tacks, 90x6 tens@—%

Tanks, Oil and Gasoline—

Wilson & Friend Co., Oil Gal., Gasoline, \$2.75 \$3.00

60 \$3.50 \$4.00

110 \$5.00 \$5.75

Tapes, Measuring—

American Asses' Skin, 50x@—%

Patent Leather, 25x30x45%

Steel, 33½x45%

Chesterman's, 25x35x45%

Keuffel & Esser Co., 40x10x50%

Favorite, Ass Skin, 30x30x5%

Favorite, Duck and Leather, 25x5x25x10%

Metallic and Steel, lower list, 35x35x5%; Pocket, 35x35x5%.

Lufkins:

Asses' Skin, 40x10x50%

Metallic, 30x30x5%

Patent Bend, Leather, 25x5x25x10%

Pocket, 40x40x5%

Steel, 33½x45%

Wibusch & Hilger: Chesterman's Metallic, No. 34L, etc., 25%

Chesterman's Steel, No. 1038L, etc., 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ¾-inch and larger, per 100 lb., \$2.55@2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, etc., per doz., \$30.00 35%

Ties, Bale—Steel Wire—

Single Loop, per doz., \$8.00 10%

Monitor, Cross Head, etc., 70x8½%

Tinners' Shears, &c.—

See Shears, Tinners', &c.

Tinware—

Stamped, Japanese and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See Benders and Upsetters, Tire.

Tools—Coopers'—

L. & I. J. White, per doz., \$20.00 20x5%

Haying—

Myers' Hay Tools, per doz., \$50.00

Ice Tools—

Gifford-Wood Co., per doz., \$15.00

Miniature—

Smith & Hemenway Co.'s, Davidson, per doz., Nickel Plated, \$1.50 Gold Plated, \$2.00

Saw—

Atkins' Cross Cut Saw Tools, 35x5%

Simond's Improved, 33½%

Simonds' Crescent, 30%

Ship—

L. & I. J. White, per doz., \$25.00

Torches—

Hammers, Engine, per doz., \$1.50

Transom Lifters—

See Lifters, Transom.

Traps—Fly—

Balloon, Globe or Acme, doz., \$1.15@1.25; gro., \$11.50@12.00

Harper, Champion or Paragon, doz., \$1.25@1.40; gro., \$13.00@13.50

Game—

Imitation Oneida, 75x10%

Newhouse, 50x5%

Hawley & Norton, 65x10%

Victor, 75x75x10%

Oneida Community Jump, 70x5%

Stop Thief, 60%

Tree Trap, 60%

Hector, 75x75x10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢

Mouse, Round or Square Wire, doz. 85¢ 90¢

Marty French Rat and Mouse Traps (Genuine), per doz., \$2.00

Crate lots. Small lots.

No. 1, Rat, \$11.50 \$14.50

No. 2, Rat, \$5.75 \$6.50

No. 3, Rat, \$4.70 \$5.25

No. 5, Mouse, \$2.25 \$3.00

Animal Trap Co.: Out o' Sight, Mouse, per doz., \$0.60

Out o' Sight, Rat, per doz., 1.20

Easy Set, Mouse, per doz., .35

Easy Set, Rat, per doz., .85

Out o' Sight Chokers, per doz., .12

Out o' Sight, Tin, 5-hole, per doz., .75

Trowels—

Disston Brick and Pointing, 25%

Disston Plastering, 20%

Disston "Standard Brand" and Garden Trowels, 30%

Kohler's Steel Garden Trowels, per doz., 5 in., \$4.80; 6 in., \$6.00

Never-Break Forged Steel Garden Trowels, in bulk, net per doz., \$5.50

In 1 doz. boxes, per doz., \$6.00

Woodrough & McParlin, Plastering, 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.: New York Pattern, 50x10%

Western Pattern, 60x10%

Handy Trucks, per doz., \$16.00

Grocery, per doz., \$15.00

McKinney Trucks, each, net \$10.00

Model Store Trucks, per doz., \$18.50

Tubs, Wash—

M'fgr's list, price per gross.

No. 0 1 2 5

Galvanized, \$67 \$79 \$89 \$99 10¢ 7½¢ 45¢ 45%

Twine, Miscellaneous—

Flax Twine:

No. 9, ¼ and ½-lb. Balls, 21¢ 23¢

No. 12, ¼ and ½-lb. Balls, 19¢ 21¢

No. 18, ¼ and ½-lb. Balls, 16¢ 18¢

No. 24, ¼ and ½-lb. Balls, 15¢ 17¢

No. 36, ¼ and ½-lb. Balls, 15¢ 17¢

Chalk Line, Cotton, ¼-lb. Balls, 24¢ 29¢

Cotton Mops, 6, 9, 12 and 15 lb. to do, 8½¢ 19¢

Cotton Wrapping, 5 Balls to lb. according to quality, 13½¢ 19¢

American 2-Ply Hemp, 1 and ½-lb. Balls, 12½¢ 15¢

American 3-Ply Hemp, 1-lb. Balls, 13½¢ 16¢

India, 1-Ply Hemp, 1½-lb. Balls, 7¢ 9¢

Balls (Spring Twine), 7½¢ 9¢

India 3-Ply Hemp, 1-lb. Balls, 7½¢ 9¢

India 2-Ply Hemp, 1½-lb. Balls, 7¢ 9¢

2, 3, 4 and 5-Ply Jute, 1½-lb. Balls, 9¢ 11¢

Mason Line, Linen, ¼-lb. Balls, 17¢

No. 24 Mattress, ¼ and ½ lb. Balls, according to quality, 30¢ 60¢

Wool, 3 to 6 ply, . . . B 6¢; A 7½¢

Vises—

Solid Box, 50x50x50x10x5%

Parallel—

Athol Machine Co.: Simpson's Adjustable, 40%

Standard, 40%

Amateur, 25%

Columbian Hdw. Co., 40x5%

Slide, 65%

Fisher & Norris Double Screw, net, each, Nos. 2, \$10.50; 3, \$16.00; 4, \$20.50; 5, \$27.00; 6, \$32.00.

Fulton Mach. & Vise Co.: Star, Solid Jaw, Machinists', 40%

Hollands', 40x40x5%

Machinists', 65x5x70%

Lewis Tool Co.: Adjustable Jaw, 30%

Monarch, 50%; Solid Jaw, 50%

Massey Vise Co.:

Clincher, 40%

Parallel Bar, 15%

Perfect, 15%; Lightning Grip, 15%

Merrill's Millers Falls Oval Slide Pattern, 60x10%

Parker's: Victor, 20x25%; Regulars, 20x25%

Vulcan's, 40x45%

Combination Pipe, 55x40%

Prentiss, 20x25%

Rock Island Jaw Clamps, per doz., \$1.50

Reading, 60%

Saw Filers

Disston's D 3 Clamp and Guide, per doz., \$4.00, 30%; Clamps, 30%

Perfection Saw Clamps, per doz., \$1.50

Reading, 60%

Wood Workers—

Fulton Mach. & Vise Co.: F. & R. Double Swivel Coachman's, 40%

Star Solid Jaw Woodworkers', 60%

Massey Vise Co.: Lightning Grip, 15%

Wyman & Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.

Miscellaneous—

Fulton Machine & Vise Co., Combination Pipe, 70%

Holland's Combination Pipe, 60x60x3%

Massey's Quick Action Pipe, 40%

Parker's Combination Pipe, 40%

87 Series, 60%; 187 Series, 60x5%; No. 870, 40%.

Rock Island Pipe, 25%

Wads—Price per M.

B. E., 11 up, 60¢

B. E., 9 and 10, 70¢

B. E., 8, 80¢

B. E., 7, 80¢

P. E., 11 up, \$1.00

P. E., 9 and 10, 1.25

P. E., 8, 1.50

P. E., 7, 1.50

Ely's B. E., 11 and larger, \$1.70@1.75

Ely's P. E., 12 to 20, \$3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:

Enameled, 45¢ 10%

Ground, 50¢ 5%

Plain or Unground, 60%

Country Hollow Ware, per 100 lbs, \$2.75@3.00

White Enameled Ware:

Maslin Kettles, 65¢ 10%

Covered Ware:

Tinned and Turned, 35¢ 10%

Enameled, 45¢ 10%

See also Pots, Glue.**Enameled—**

Agate Nickel Steel Ware, 33½%

El-an-ge, 60x10%

Iron Clad Ware, 70x10%

Lava and Volcanic, Enameled, 40x10%

Tea Kettles—

Galvanized Tea Kettles:

Inch, 6 7 8 9

Each, 45¢ 50¢ 55¢ 65¢

Steel Hollow Ware—

Avery Stamping Co.: Never-Break Spiders and Grids, 65x10%

Steel Kettles, Maslin Scotch Bowls, Tin'd, 60%

Steel Stew Pans, Stew Pots, etc., 50%

Porcelainized, 50%

Cleveland Stamping & Tool Co.: Solid Steel Spiders and Grids, 65x5%

